Letter of Notification for the Hillsboro-Millbrook Park 138 kV Line Rebuild Project

AEP OHIO TRANSMISSION COMPANY

An AEP Company

BOUNDLESS ENERGY

PUCO Case No. 21-0268-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.

May 11, 2021

Letter of Notification

AEP Ohio Transmission Company, Inc.
Hillsboro-Millbrook Park 138 kV Line Rebuild Project

4906-6-05

AEP Ohio Transmission Company, Inc. (the "Company") is providing 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 applicant shall provide 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 or Construction Notice application.

The Company proposes to construct the Hillsboro-Millbrook Park 138 kilovolt (kV) Line Rebuild Project in Highland, Adams, Pike and Scioto counties, Ohio. The Project consists of rebuilding approximately 52 miles of the existing wood H-frame 138 kV line within existing right-of-way (ROW), using mainly steel H-frame structures, and involves the following components starting at Hillsboro Station:

- Rebuilding approximately 4.3 miles of the existing Portsmouth-Trenton No. 2 138 kV transmission line between the Hillsboro Station and the Seaman-Highland 138 kV line crossing.
- After the transmission line crosses over the Seaman-Highland 138 kV line, a 6-wire configuration exists; specifically, the Portsmouth-Trenton No. 1 and No. 2 lines run parallel to a point just outside the South Lucasville Station and are operating as a single circuit (approximately 39 miles). The Company is proposing to rebuild the two existing 6-wired (electrically tied together) lines onto the southern alignment as one single circuit 138 kV line utilizing larger conductor.
- Heading south out of South Lucasville Station, the Portsmouth Trenton No. 1 and No 2. 138 kV lines operate as 2 single circuit parallel lines to the Millbrook Park Station (approximately 8.6 miles). The Company is proposing to rebuild the two existing single circuit lines onto the western line as one double circuit line to the Millbrook Park Station. One circuit will enter the North Portsmouth Station, approximately 5 miles southeast of South Lucasville Station, and then continue south to the Millbrook Park Station.

In addition, the Project involves replacing the Sinking Springs Switch structure in Sinking Springs, OH, located approximately 13 miles southwest of the Hillsboro Station.

All of the rebuilt transmission line assets will be owned by the Company with the exception of seven existing towers or pole structures, which will not be replaced, and are owned by Ohio Power Company.

The Project will be constructed within the existing 100-foot wide transmission line ROW. The location of the Project is shown on a USGS topographic map as Exhibit 1 in Appendix A.

The Project meets the requirements for a LON because it is within the types of projects defined by Item (2)(b) of 4906-1-01 ***Appendix A Application Requirement Matrix For Electric Power Transmission Lines*** as it is replacing structures with a different type of structure for less than two miles. Item (2)(b) of 4906-1-01 *Appendix A* states:

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

The Project has been assigned PUCO Case No. 21-0268-EL-BLN.

B(2) Statement of Need

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

The Project involves rebuilding approximately 52 miles of 138 kV line between Ohio Power Company's Hillsboro and Millbrook Park stations, as a single circuit line. Currently, the Hillsboro-Millbrook Park 138 kV circuit is configured as two separate wood pole lines, six wired together. Fifty percent of the structures are original vintage from 1943 and the remaining structures were replaced between 1960-1980. The majority (93%) of the original conductor built in 1944 and 1948 is still in service. This line has significant asset renewal concerns, which includes 1342 open conditions on the line. These conditions include numerous pole, shielding, and grounding issues throughout the line.

South Central Power's Sinking Springs delivery point is served from this line and has experienced over 3.5 million Customer Minutes of Interruption over the past five years. Sinking Springs serves approximately 1,500 customers with 4.6 MVA of peak load. Retiring the existing line is not viable as this line serves as an interconnection to Dayton Power & Light ("DPL") zone and provides service to DP&L and Duke Energy Ohio ("Duke"). In addition, there have also been numerous IPP requests to interconnect in the area. Without the Project, customer minutes of interruptions will continue to get worse as the line asset deteriorates.

The need and solution for this project was presented to PJM on 5/20/2019 and 2/21/2020, then subsequently assigned a PJM # of s2201. This Project was included in the Company's most recent Long-Term Forecast Report on page 75 of 87.

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 Project is located in Highland, Adams, Pike and Scioto counties, Ohio. The Project begins at the Hillsboro Station located just northwest of County Road 7 in Highland County (near 39.173413 latitude, -83.677805 longitude) and extends 52 miles southeast terminating at the Millbrook Park Station located south of County Route 52 in Scioto County (near 38.753218 latitude, -82.928937 longitude). Exhibit 1 in Appendix A shows the proposed Project relative to existing transmission facilities on a USGS topographic quadrangle map. Exhibit 2 in Appendix A identifies the Project components on aerial imagery.

B(4) Alternatives Considered

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

The Project is proposing to rebuild on or near the centerline of the existing transmission line and within existing ROW. Abandoning the existing ROW for a new greenfield route is neither practical nor necessary for this Project. As such, no other alternatives were considered for the Project. Any other alternative would likely add additional length to the Project, and likely more (or new) land use and environmental impacts for a greenfield-based route alternative without any commensurate benefit. Slight line shifts will be necessary where residences or commercial buildings currently exist in close proximity to the existing line. However, these shifts are minor and do not impact any additional wetlands, streams, or known cultural resources and are located within existing ROW. Therefore, this Project represents the most suitable location and is the most appropriate solution for meeting the Project needs.

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 newspaper of general circulation in the Project area. The notice will comply with all requirements of Ohio Revised Code ("OAC") Section 4906-6-08(A)(1-6). Further, the Company will mail a letter, via first class mail, to affected landowners, tenants, contiguous 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 provides the public access to an electronic copy of this LON and the public notice for this LON. An electronic copy of the LON will be served to the public library in each political subdivision for this Project. The Company retains ROW land agents that discuss Project timelines, construction and restoration activities and convey information to affected owners and tenants throughout the Project.

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 commence in the Fall of 2021 with a proposed in-service of October 2025.

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.

Exhibit 1 in Appendix A identifies the location of the Project area on a USGS 1:24,000 quadrangle map. Exhibit 2 in Appendix A consists of an aerial imagery map from October 2019 of the Project area.

To visit the Project starting point from Columbus, take I-70 W/I-71 S. Follow I-71 S to OH-72 S in Jefferson Township. Take exit 58 from I-71 S. Continue on OH-72 S. Take OH-729 to Mad River Road in New Market Township. Turn left onto OH-72 S, then continue for 10.1 miles. Turn right onto OH-729 S, then continue for 7.6 miles. Turn left onto OH-73 E, then continue for 3.1 miles. Turn right onto Mad River Road, then continue for 5.0 miles. Continue onto OH-124 E for 0.4 miles then turn right onto Mad River Road. You will arrive at the start of the Project at Hillsboro Station in 4.7 miles.

B(8) Property Agreements

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

The Project will be constructed within the Company's existing ROW, however, additional supplemental easements will be necessary for minor line shifts from the existing centerline. Appendix C provides a table of property parcel numbers with an indication as to whether the easement/option necessary to construct and operate the facility has been obtained.

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 Project is estimated to include the following:

Voltage: 138kV
Conductors: 1033.5 kcmil 54/7 Strands CURLEW ACSR
Static Wire: 7#8 Alumoweld & AFL OPGW 0.646" with up to 48 Fibers
Insulators: Polymer
ROW Width: 100 feet, some locations will require additional ROW ranging from 110-230 feet due to long span blowout
Structure Type: Ten (10) double circuit, steel monopole dead ends
Thirty-five (35), double circuit, steel monopole suspension
Fourteen (14), single circuit, steel monopole delta dead-end
One (1), single circuit, steel monopole switch
Two (2), single circuit, steel monopole vertical dead-end
Four (4), single circuit, steel monopole braced post
Three (3), double circuit, steel 2-pole dead-end
One (1), single circuit, steel 3-pole dead-end
Nine (9), single circuit, steel 3-pole horizontal dead-end with guys
One (1), single circuit, steel 3-pole, horizontal suspension with guys
One (1), single circuit, steel H-frame heavy suspension with guys
240, single circuit, steel H-frame suspension
Seven (7), single circuit, steel H-frame light suspension with guys
Two (2), single circuit, steel H-frame medium suspension

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.

Three loading conditions were examined: (1) Normal Maximum Loading, (2) Emergency Loading, and (3) Winter Normal Conductor Rating, consistent with the OPSB requirements. Normal Maximum Loading represents the peak flow expected with all system facilities in service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter normal (WN) conductor rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions. It is not anticipated that this line would operate at its WN rating in the foreseeable future.

EMF levels were computed one meter above ground under the line and at the ROW edges (50/50 feet, left/right, of centerline).

Results calculated below use EPRI's EMF Workstation 2015 software.

Hillsboro-Millbrook Park 138 kV Line				
Condition	**Hillsboro-Millbrook Park line Load (A)**	**Ground Clearance (feet)**	**Electric Field (kV/m)***	**Magnetic Field (mG)***
(1) Normal Max. Loading^	154.28	30.28	0.64/1.35/0.64	8.67/28.84/8.67
(2) Emergency Line Loading^^	167.37	24.58	0.66/1.840/0.66	10.51/44.76/10.51
(3) Winter Conductor Rating^^^	1568.89	30.28	0.64/1.349/0.64	88.12/293.3/88.12

*EMF levels (left ROW edge/maximum/right ROW edge) computed one meter above ground at the point of minimum ground clearance, assuming balanced phase currents and 1.0 P.U. Voltages. ROW width is 50 feet (left) and 50 feet (right) of centerline, respectively.

^Peak line flow expected with all system facilities in service.
^^Maximum flow during a critical system contingency
^^^Maximum continuous flow that the line, including its terminal equipment, can withstand during winter conditions.

For power-frequency EMF, IEEE Standard C95.6TM-2002 recommends the following limits:

	General Public	Controlled Environment
	-------	----------
Electric Field Limit (kV/m)	5.0	20.0
Magnetic Field Limit (mG)	9040.0	27,100.0

The above EMF levels are well within the limits specified in IEEE Standard C95.6TM-2002. Those limits have been established to "prevent harmful effects in human beings exposed to electromagnetic fields in the frequency range of 0-3 kHz."

B(9)(c) Project Costs

The estimated capital cost of the project.

The capital cost estimate for the Project, which is comprised of applicable tangible and capital costs, is approximately $153,000,000, using a Class 4 estimate. Pursuant to the PJM OATT, the costs for this Project will be recovered in the AEP Ohio Transmission Company's FERC formula rate (Attachment H-20 to the PJM OATT) and allocated to the AEP Zone.

B(10) Social and Economic Impacts

The applicant shall describe the social and ecological impacts of the project.
B(10)(a) Land Use Characteristics

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

The Project is located in Highland, Adams, Pike and Scioto counties, Ohio. The cities crossed include New Boston and Portsmouth. The townships crossed include Franklin, Brush Creek, Jackson, Liberty, Marshall, New Market, Washington, Camp Creek, Mifflin, Sunfish, Clay, Jefferson, Morgan, Porter, Rarden, Rush, and Valley. Land use and natural communities observed within the Project area include agricultural land, industrial, residential, old field, upland forest, existing roadways, upland scrub shrub, palustrine emergent (PEM) wetlands, palustrine scrub-shrub (PSS) wetlands, and palustrine forested wetlands (PFO).

No places of worship or airports were identified within 1,000 feet of the project alignment. There are four (4) schools and one (1) cemetery located within 1,000 feet of the Project alignment. In addition, there are 10 residences identified within 100 feet of the Project's centerline alignment.

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 Adams, Highland and Scioto County Auditor's Office provided a list of parcels registered as Agricultural District Land in March 2021. The proposed Project intersects with four (4) parcels identified as Agricultural District Land parcels. These four parcels account for approximately 15.3 acres within the Project area. The Pike County Auditor's Office was also contacted to obtain information on Agricultural District Lands. To date, the Pike County Auditor's Office has not responded to the request for information, however, the Company will provide information once it has been received.

A total of approximately 204 acres of agricultural land is located within the 100-foot ROW corridor where construction activities are planned. This general agricultural land includes a mix of cropland, fallow fields, and pastures.

B(10)(c) Archaeological and Cultural Resources

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

A Phase I Archaeological Investigation was conducted for the Project and the report was provided to the Ohio State Historic Preservation Office (SHPO) for consultation. SHPO correspondence was provided in October 2020, see Appendix D. The SHPO concurred with the report's conclusions

including avoidance or additional investigations of two archaeological sites, Site 33HI0219 and Site 33SC0658.

The Company's consultant conducted additional investigations at the sites and provide a report, *Phase II Archaeological Assessment at Site 33HI0219 within the Proposed Hillsboro-Millbrook Park 138kV Rebuild Project in Highland County, Ohio*, to the SHPO for review. SHPO responded in November 25, 2020 and concurred that Site 33HI0219 is recommended not eligible for listing in the National Register of Historic Places (NRHP). The second site, Site 33SC0658, is planned to be avoided by the Project.

Additionally, the Company's consultant conducted a review and field survey of historic structure resources along the Project. The report, *History/Architecture Investigations for the 83.7 km (52 mi) Hillsboro-Millbrook 138kV Rebuild Project in Highland, Adams, Pike, and Scioto Counties, Ohio*, was reviewed by the SHPO and their comment letter was received on October 22, 2020. The SHPO concurred that the Project as proposed will have no adverse effect on the identified historic properties.

A copy of the SHPO's correspondence letters is provided in 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.

Three (3) separate Notice of Intent's will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000004, and 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 and control sediment to protect surface water quality during storm events.

The Company's consultant completed a wetland delineation and stream identification field review of the existing and planned ROW for the Project (Appendix E). A total of 72 wetlands, 219 streams, and 14 ponds were delineated within the environmental survey corridor. The identified wetlands and streams are located within or adjacent to the planned transmission line ROW and are proposed to be aerially spanned by the Project. However, temporary impacts to wetlands will be necessary for the Project, which will require a Section 404 permit and a Pre-Construction Notification will be filed with the U.S. Army Corps of Engineers (USACE) Huntington District. The Project will also require a Section 10 permit from the USACE for the Scioto River crossing.

The Project crosses the Federal Emergency Management Agency (FEMA) 100-year floodplains of seven (7) waterbodies including: Elm Run, Elk Run, Middle Fork Ohio Brush Creek, Baker Fork, Scioto River, Candy Run, and Munn Run. In addition, the Project crosses one (1) mapped FEMA floodway along the Scioto River. These resources are shown on Figure 2-1 to 2-110 in Appendix E. The Company will obtain floodplain permits from the Counties for the construction of any structures within these areas.

There are no other known local, state or federal requirements that must be met prior to commencement of the Project.

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 with Ohio Department of Natural Resources-Division of Wildlife (ODNR-DOW) was initiated on September 9, 2019 to obtain Environmental Review and Ohio Natural Heritage Database records within a 1-mile buffer area around the project. ODNR-DOW's response was received on January 22, 2020, see Appendix D. In addition, a consultation request was submitted to the U.S. Fish and Wildlife Service (USFWS) on September 9, 2019 with a response received on December 18, 2019. A copy of the Agency Correspondence letters are provided in Appendix D.

Based on consultation from the USFWS, portions of the southern Scioto County are in Indiana bat hibernaculum buffers and roost tree buffers. The northern section of the line in Highland County is within many capture buffers of male and female Indiana bats (*Myotis sodalis*) and roost trees. Portions of the project are also within capture buffers of northern long-eared bats (*Myotis septentrionalis*). The Company anticipates completing tree clearing during the recommended timeframe (October 1 through March 31), but should implementation of the seasonal tree clearing recommendation not be feasible, proper agency coordination will be conducted. The Company is currently coordinating with the USFWS to provide the requested tree clearing acreages in Scioto and Highland counties.

The endangered rayed bean is a freshwater mussel known to occur in Scioto Brush Creek and the Scioto River, both of which are spanned by the proposed transmission line. The rayed bean (*Villosa fabalis*) prefers substrates of gravel and sand, and they are often associated with, and buried under the roots of, vegetation, including water willow (*Justicia americana*) and water milfoil (*Myriophyllum sp.*). The endangered clubshell (*Pleurobema clava*) and northern riffleshell (*Epioblasma torulosa rangiana*) mussels are also known to occur in the Scioto River. USFWS states that if the project directly or indirectly impacts any of the mussel streams above, they recommend a presence/absence mussel survey. Additionally, if any impact to native riparian vegetation is proposed they recommend further coordination with USFWS. No impacts to the identified mussel species are anticipated as no in-water work is proposed for the Project.

Known populations of Virginia spiraea (*Spiraea virginiana*) occur in Ohio along long-established gravel bars in Scioto Brush Creek in Scioto County. The current alignment occurs in a township where this species is known to occur but does not cross the Scioto Brush Creek in this township. USFWS states that the current transmission line alignment does not impact this species; however, if the project proposes any re-alignments in this area then further coordination with USFWS will be required.

Lastly, the proposed Project also lies within the range of running buffalo clover (*Trifolium stoloniferum*). This species was recently proposed for delisting due to recovery. This species can potentially be found in partially shaded woodlots, mowed areas, and along streams, trails, and ROWs. During coordination with USFWS, no surveys were identified as necessary for the Project.

Consultation with USFWS is currently ongoing and recommendations for protection or minimization measures for federally listed species potentially present within the Project area have not been provided. The Company will follow up with the USFWS to further define the Project impact area and any minimization or avoidance efforts that are planned to be implemented.

Based on the consultation response from the ODNR, the western 15,000 feet of the Project route, and the portion of the Project route between the Ohio River and the Scioto River, are within the vicinity of Indiana bat records. ODNR stated that if suitable Indiana bat habitat occurs within these project areas, it is recommended that trees be conserved. If trees must be cut or removed, the ODNR recommended cutting to occur between October 1 and March 31. The remainder of the Project route may not have records of Indiana bat, however, is still within the range of Indiana bat. If suitable habitat occurs within the rest of the Project area and trees must be cut, ODNR recommended mist net surveys be conducted for the Indiana bat between June 1 and August 15, prior to any tree cutting. The Project anticipates tree clearing will take place between October 1 and March 31, to adhere to recommendations from USFWS and ODNR.

According to ODNR, the Project must not have an impact on freshwater native mussels within the Project area and per the Ohio Mussel Survey Protocol; all Group 2, 3, and 4 streams require mussel surveys. The ODNR-DOW recommends no in-water work in any perennial stream from April 15 through June 30 to reduce impacts to indigenous species and their habitat. No in-stream work is currently proposed during construction activities and will not directly impact streams crossed by the Project area. Therefore, mussel surveys are not anticipated. Because no in-water work is proposed in any perennial stream within the Project area, the Project is not likely to impact threatened or endangered aquatic species.

The Project is within the range of timber rattlesnake, eastern spadefoot, and mud salamander. ODNR recommends that a DOW approved herpetologist conduct a habitat suitability survey along the Project route to determine if suitable habitat exists for these species. If suitable habitat is determined to be present, ODNR recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by an approved herpetologist. Habitat surveys were conducted for the timber rattlesnake, eastern spadefoot toad, and mud salamander in January 2021. No suitable habitat was identified for the eastern spadefoot toad. However, suitable habitat was identified for the timber rattlesnake and mud salamander. The Project anticipates avoidance of the mud salamander habitat. A minimization and avoidance plan are currently being developed for the timber rattlesnake and coordination with ODNR is ongoing. Once coordination is complete, the Company will provide the results to OPSB.

Two bird species including the lark sparrow and loggerhead shrike are within the range of the Project. If lark sparrow habitat will be impacted, ODNR recommends that construction be avoided in their nesting habitat during the period of May 1 to June 30. If loggerhead shrike habitat is present, construction should be avoided in their nesting habitat during April 1 to August 1. The Company plans to conduct presence/absence surveys for the lark sparrow and loggerhead shrike as needed throughout Project construction in order to avoid impacts to these species. ODNR coordination is ongoing and the results will be provided to OPSB upon completion.

Based on the nature of the proposed project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated. As stated previously, tree

clearing is currently proposed between October 1 and March 31 for the Project in order to reduce impacts to bat species and their habitat. The Company will coordinate with USFWS and ODNR regarding additional construction requirements, if required by these agencies.

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.

The coordination letter received from the USFWS did not indicate any federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project. The ODNR's response letter also indicated no known unique ecological sites, geologic features, scenic rivers, state wildlife areas, state natural preserves, state or national parks, national forests, or national wildlife refuges within the Project area. The Project alignment does cross Strait Creek Prairie Bluffs Conservation Area and Brush Creek State Forest. However, impacts to these areas are expected to be minimal as the Project will remain in the existing ROW.

The Company's consultant prepared an Ecological Resource Inventory Report which outlines the presence or absence of areas of ecological concern, including but not limited to floodplains, wetlands, waterbodies and wildlife habitats. The Ecological Resource Inventory Report is provided in Appendix E. Wetland delineation, stream identification and general habitat field surveys were completed within the existing ROW from September through October 2019, with follow-up surveys conducted in January 2020 and December 2020. Land use and natural communities that were encountered within the ROW consisted of maintained transmission line ROW, agricultural land, existing roadway, substations, industrial, residential, fallow-fields, upland forest, upland scrub shrub, PEM wetland, PSS wetland, and waterbodies. A total of 72 wetlands, 219 streams, and 14 ponds were delineated within the environmental survey corridor. The Company will utilize erosion and sediment control best management practices to avoid or minimize impacts to natural resources where possible.

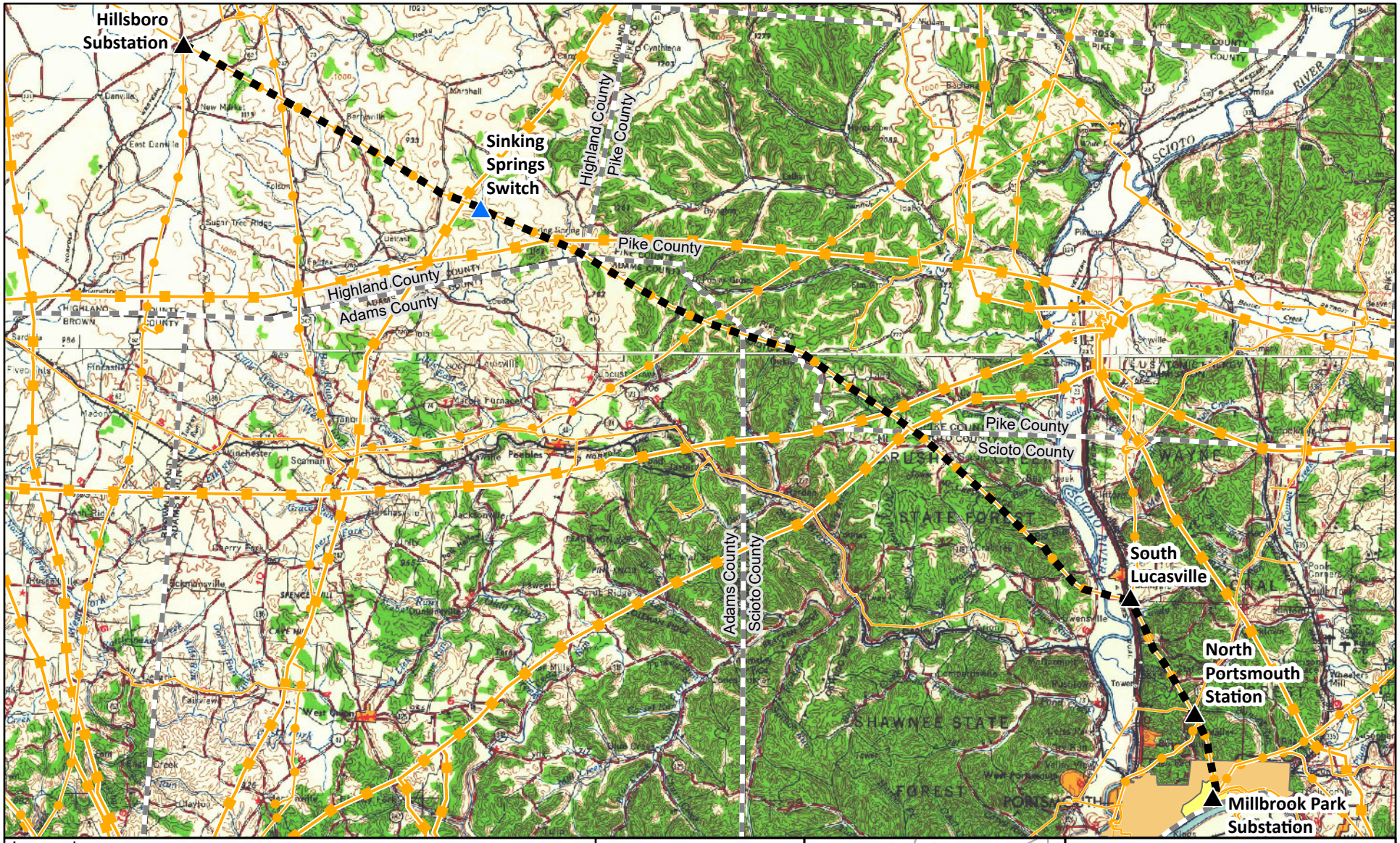
Based on the FEMA Flood Insurance Rate Maps (FIRM), the Project crosses FEMA-mapped 100-year floodplains of seven (7) waterbodies including: Elm Run, Elk Run, Middle Fork Ohio Brush Creek, Baker Fork, Scioto River, Candy Run, and Munn Runn. In addition, the Project crosses one (1) mapped FEMA Floodway, the Scioto River. These resources are shown on Figure 2-1 to 2-110 in Appendix E.

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



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City of New Boston
- City of Portsmouth

BASEMAP SOURCE

USGS 1:250,000 Topographic Maps

NAD 1983 State Plane Ohio South FIPS 3402

Scale: 1:340,000

April 14, 2021

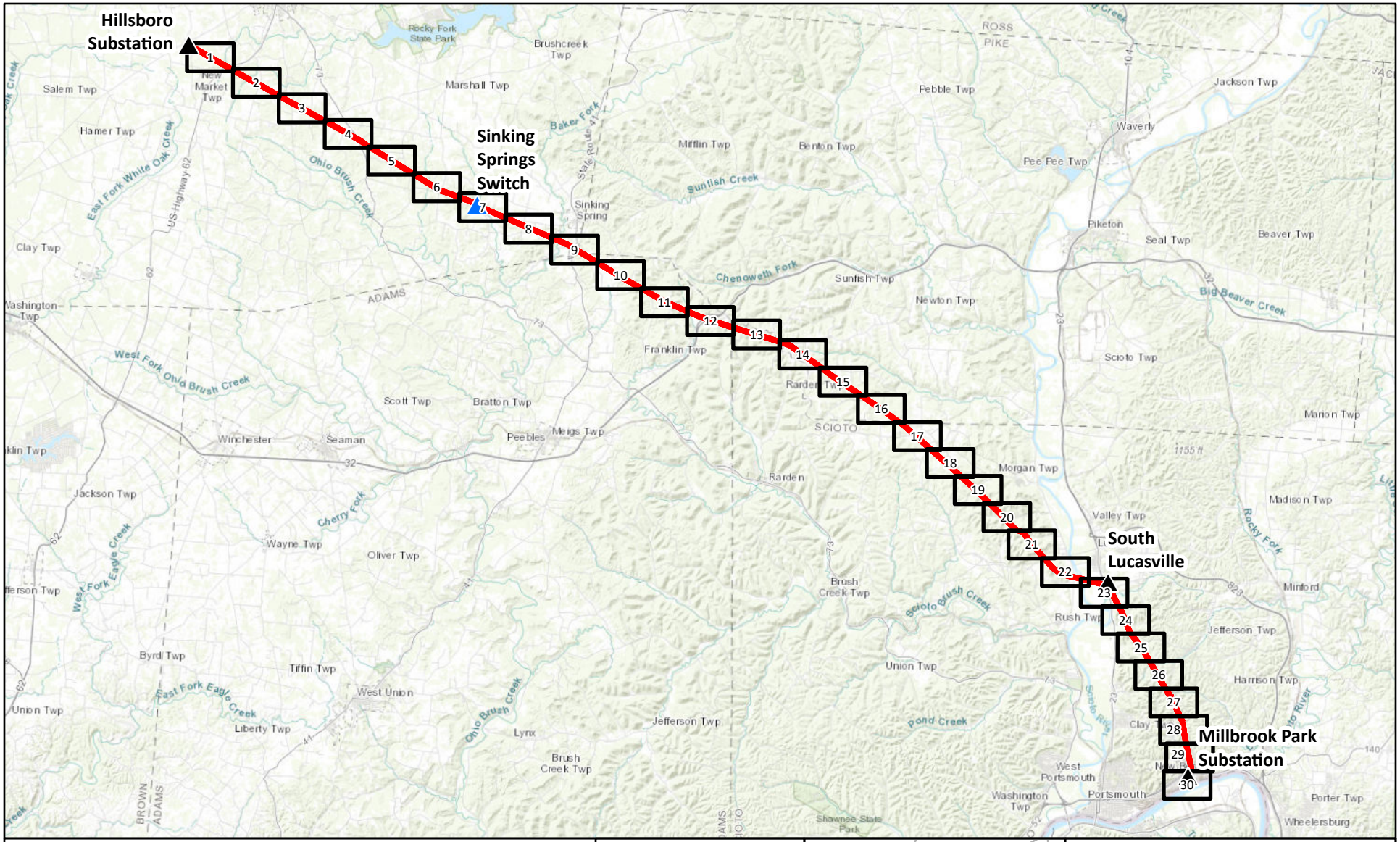
LOCATOR MAP

Exhibit 1
Location Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 2 4 6 8
Miles



Legend

- Existing Substation
- Proposed Switch
- Proposed Route
- Map Page

BASEMAP SOURCE

VITA, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS

NAD 1983 State Plane Ohio South FIPS 3402

Scale: 1:320,000

April 14, 2021

LOCATOR MAP

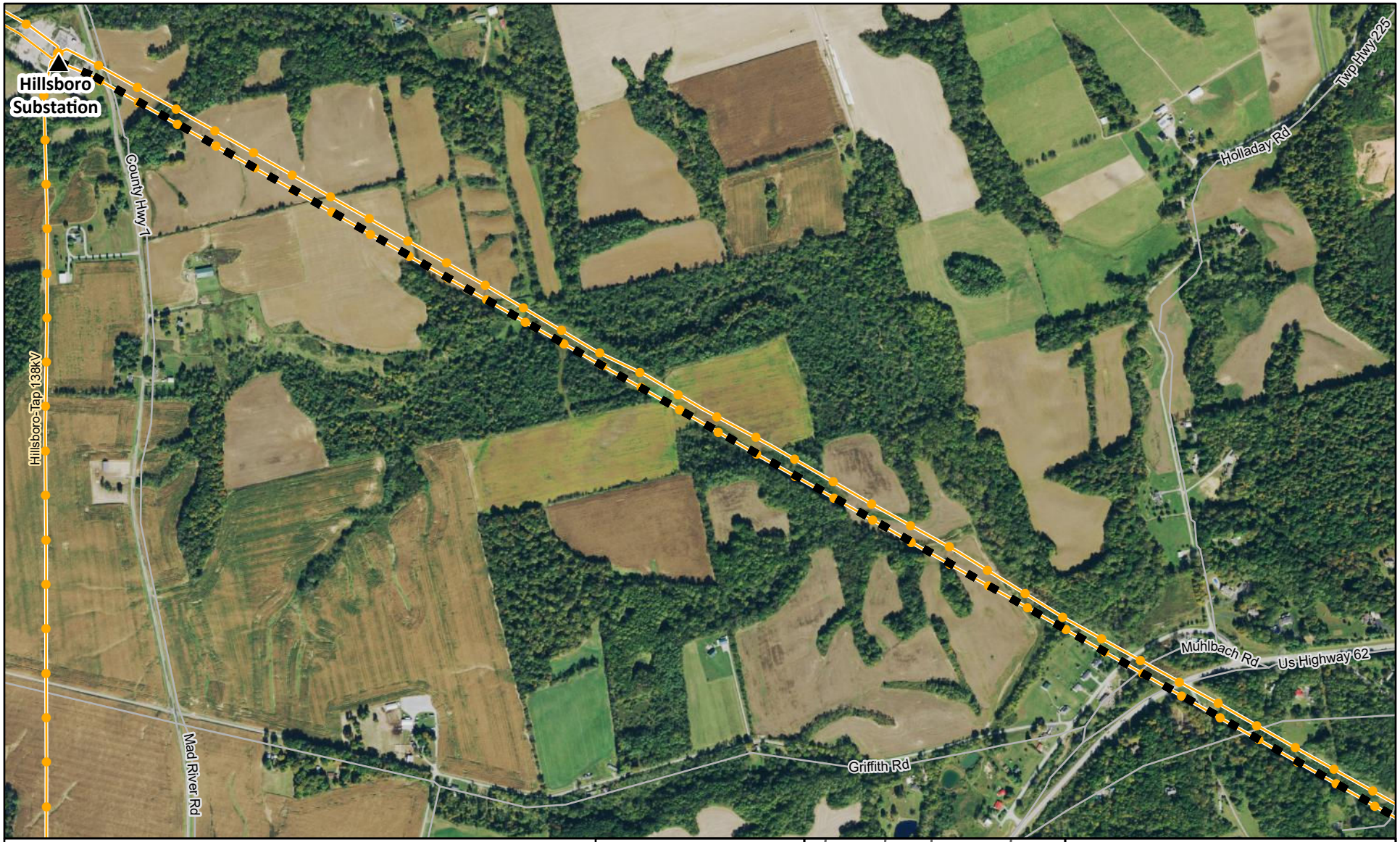


Exhibit 2
Index Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 2 4 6 8
Miles



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

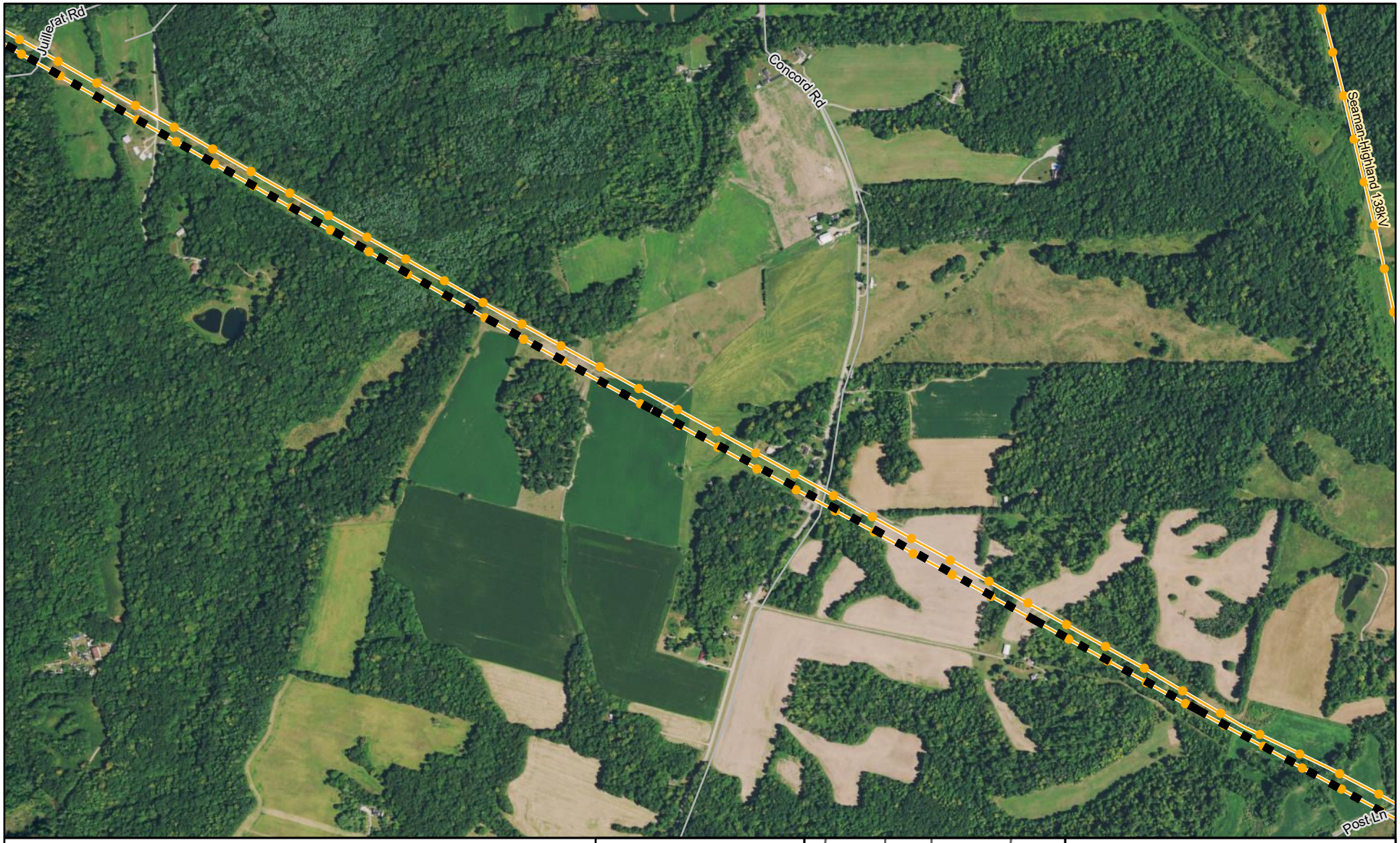


Exhibit 2.1
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

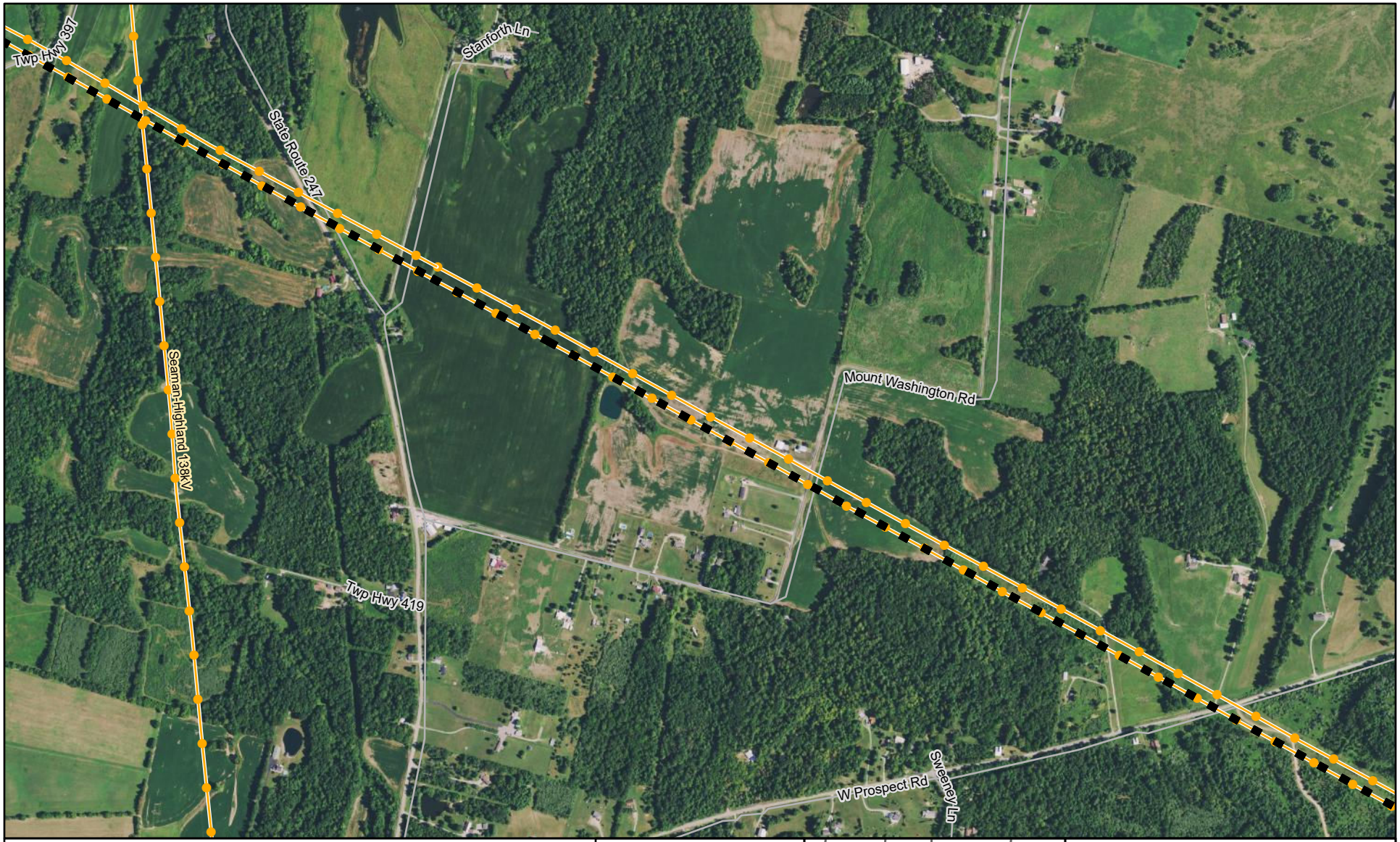
April 21, 2021

Exhibit 2.2
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.3
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

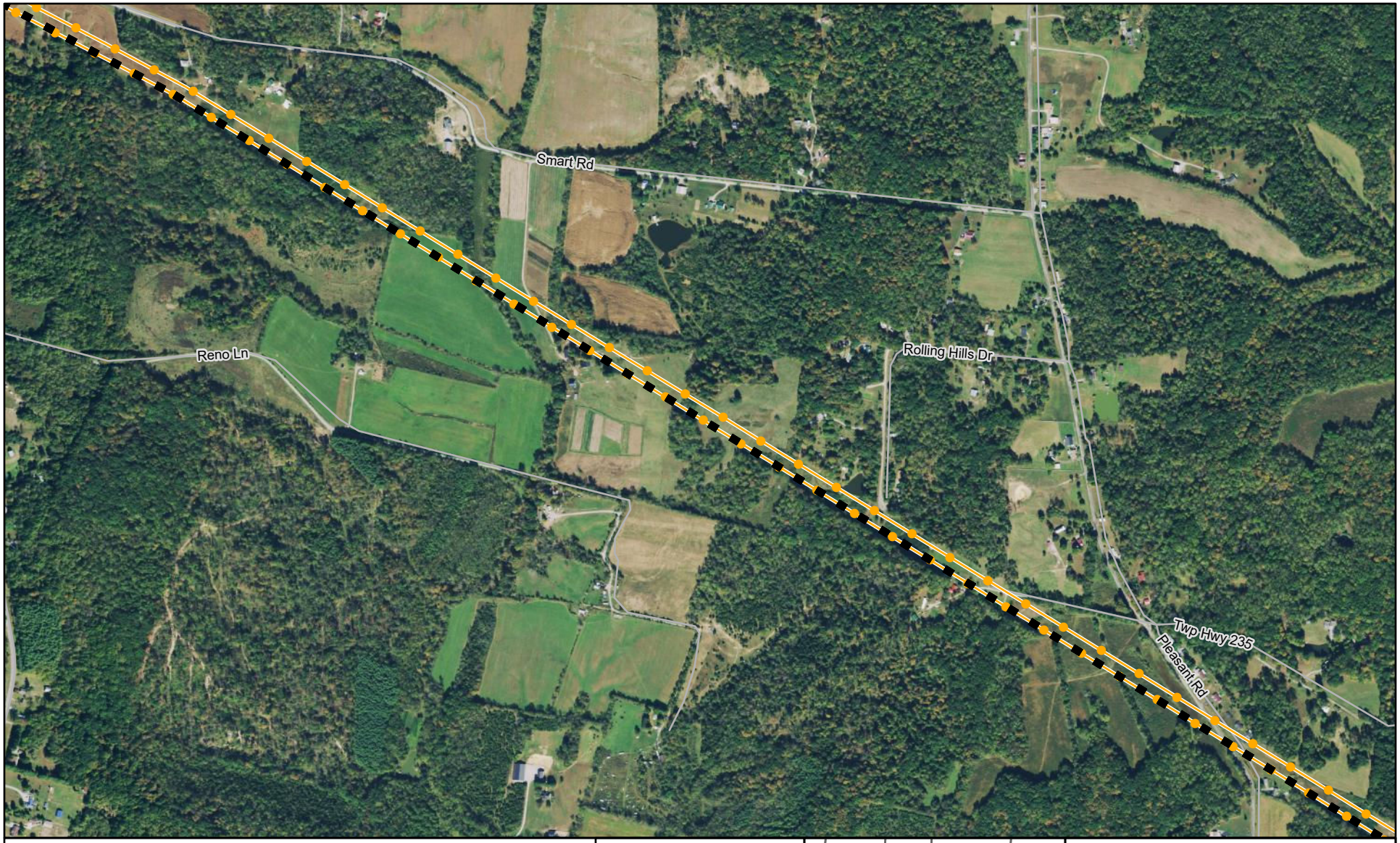


Exhibit 2.4
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

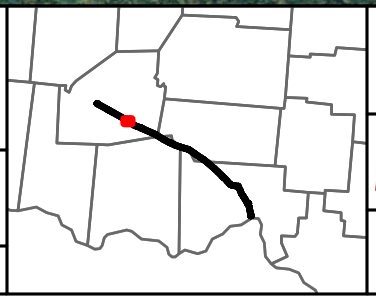
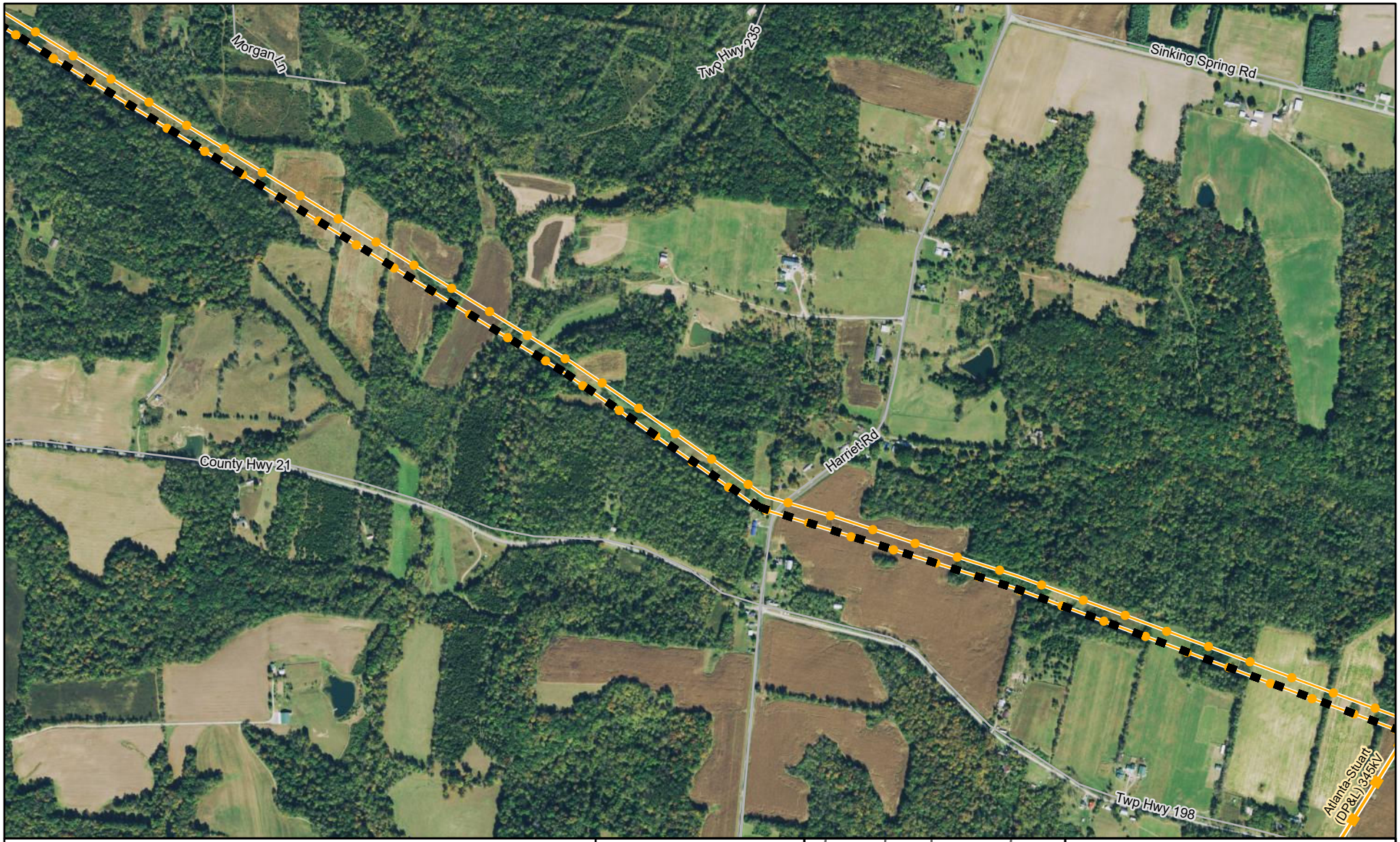


Exhibit 2.5
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

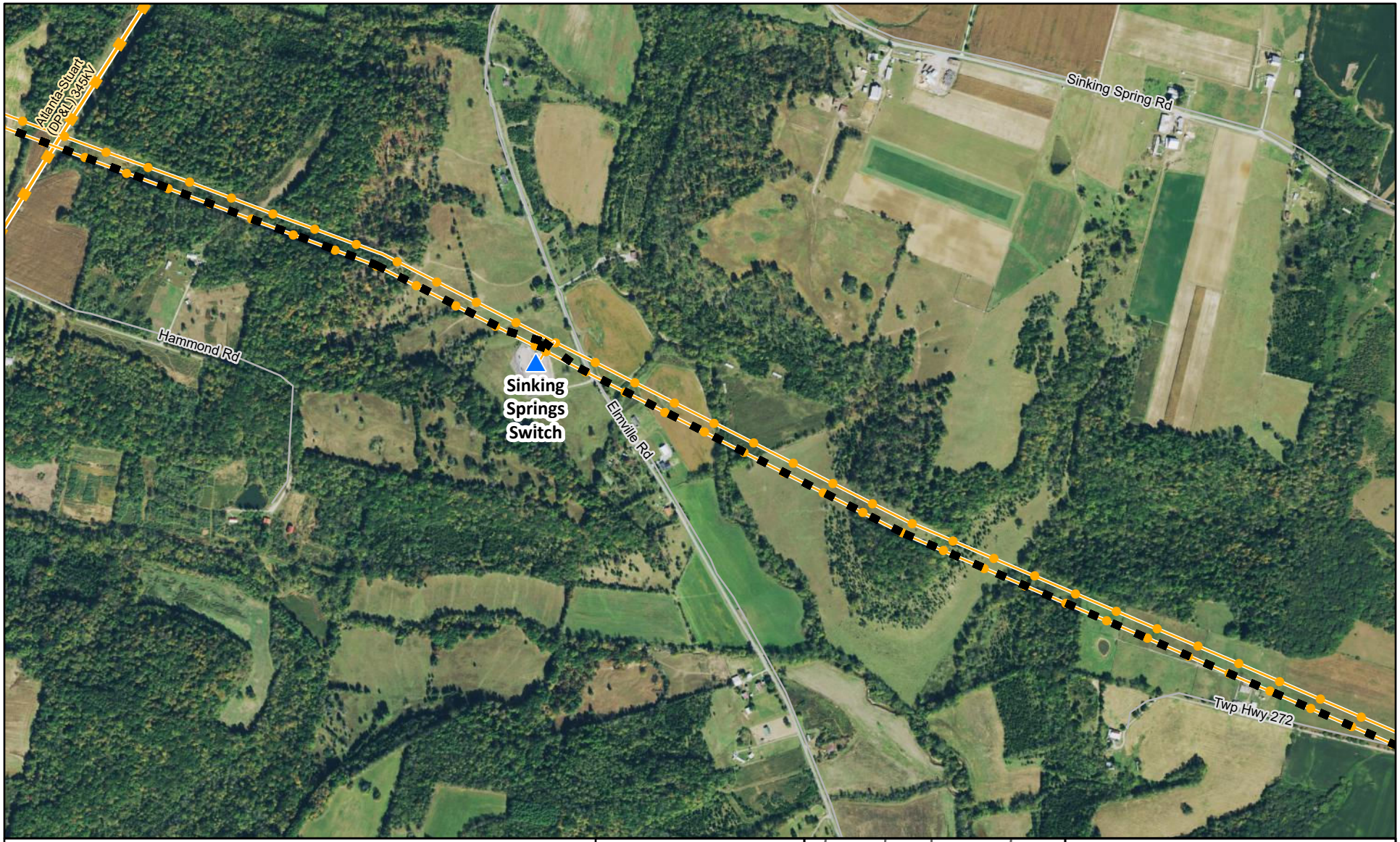


Exhibit 2.6
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

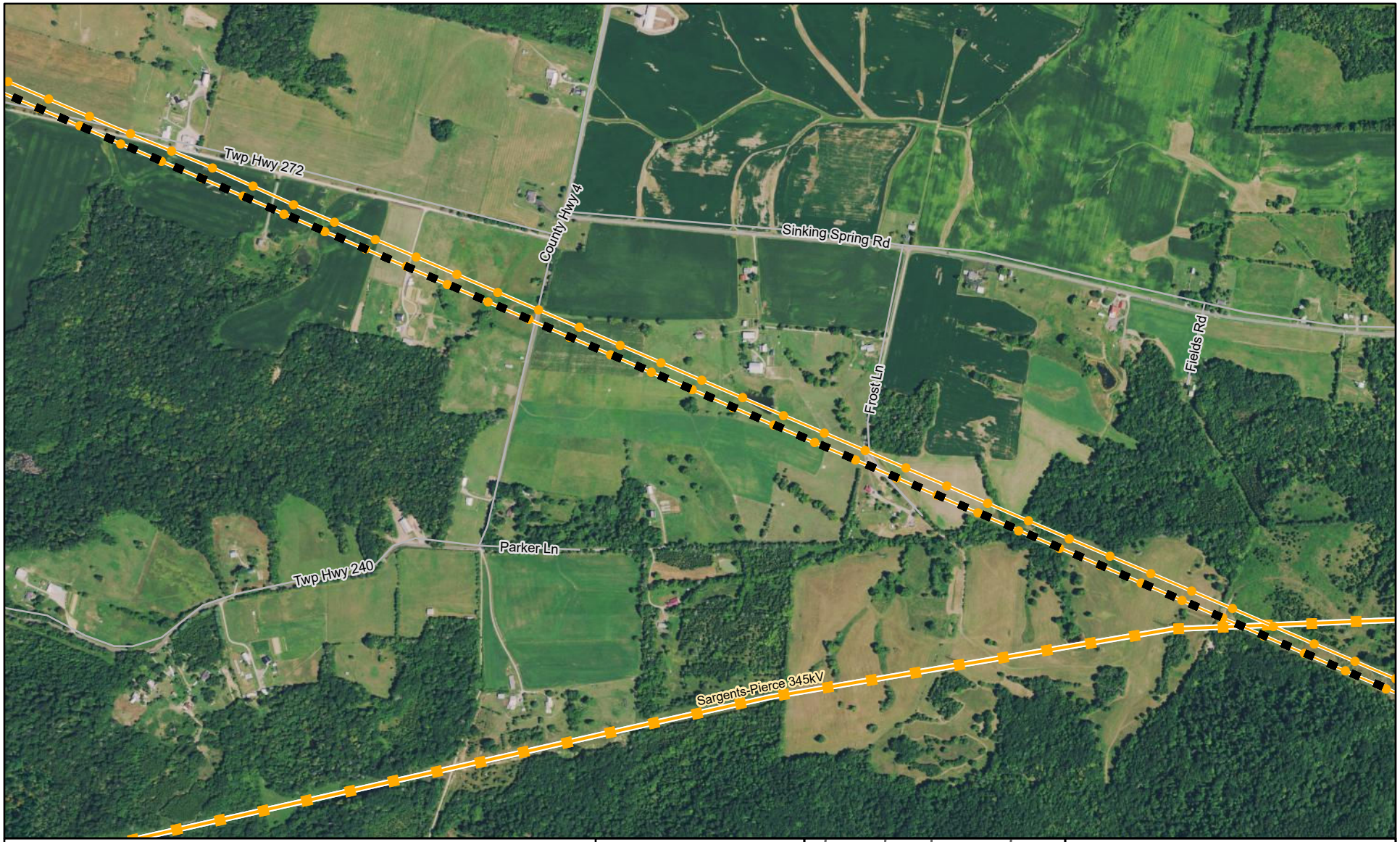


Exhibit 2.7
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

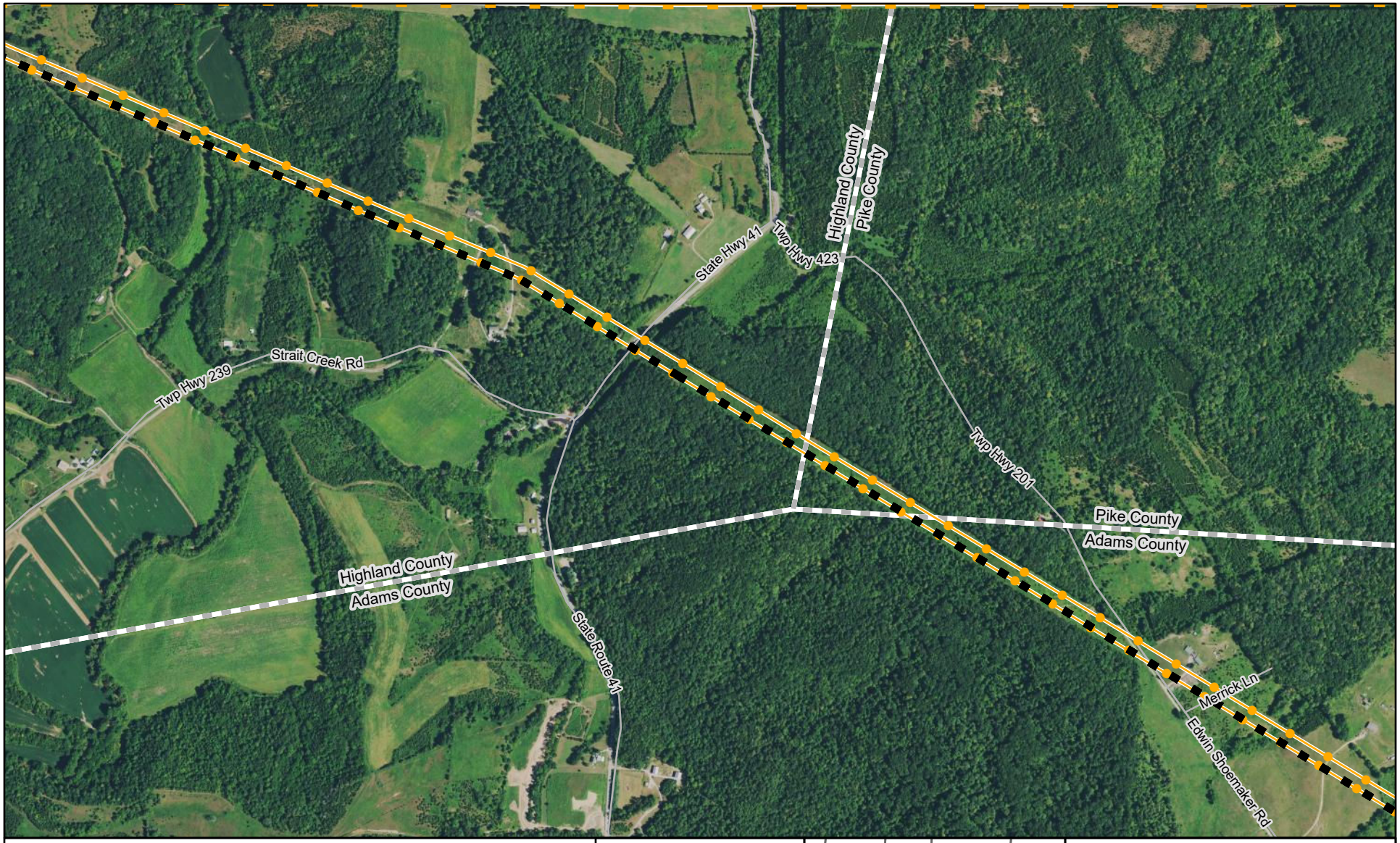
April 21, 2021

Exhibit 2.8
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.9
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

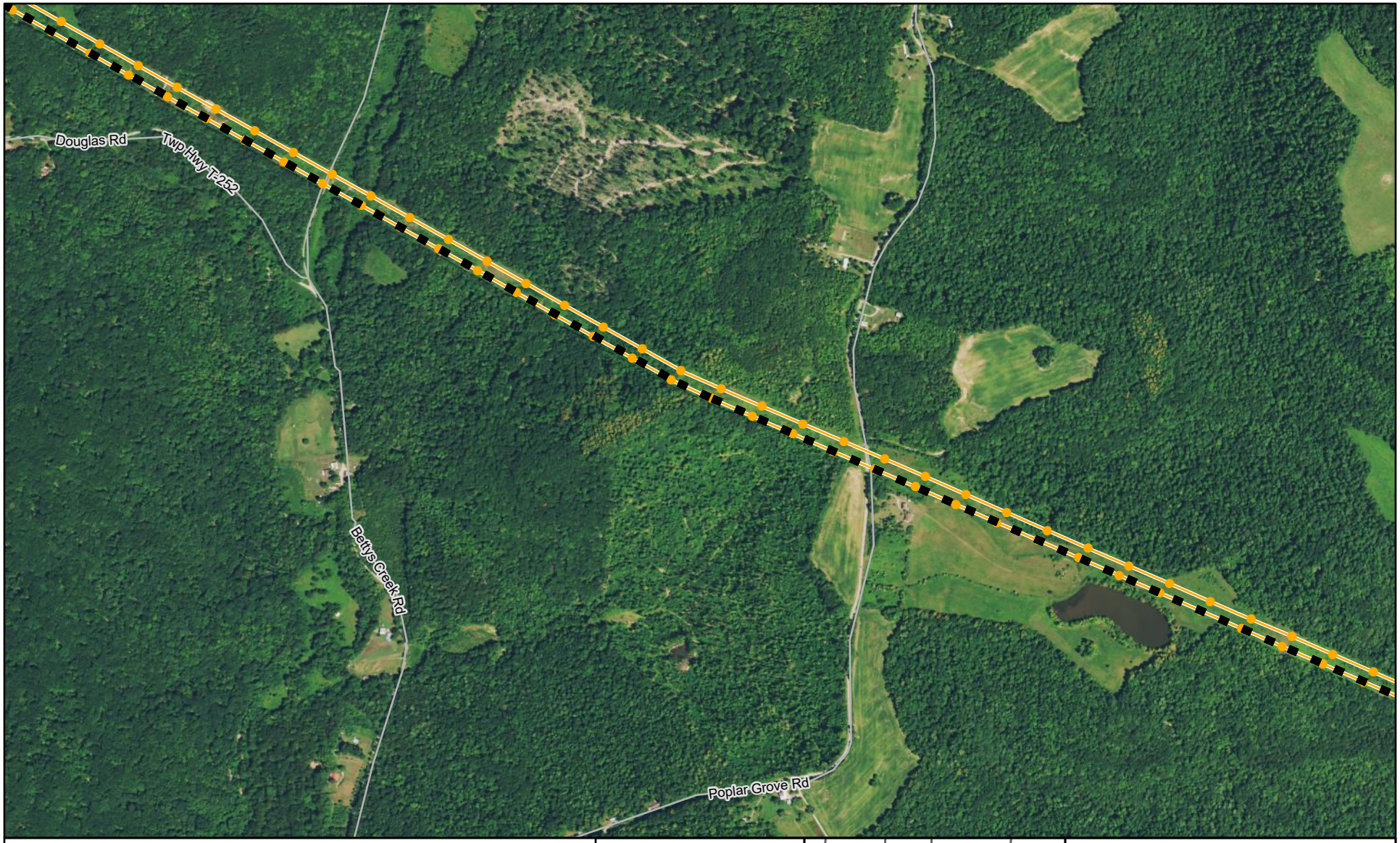


Exhibit 2.10
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

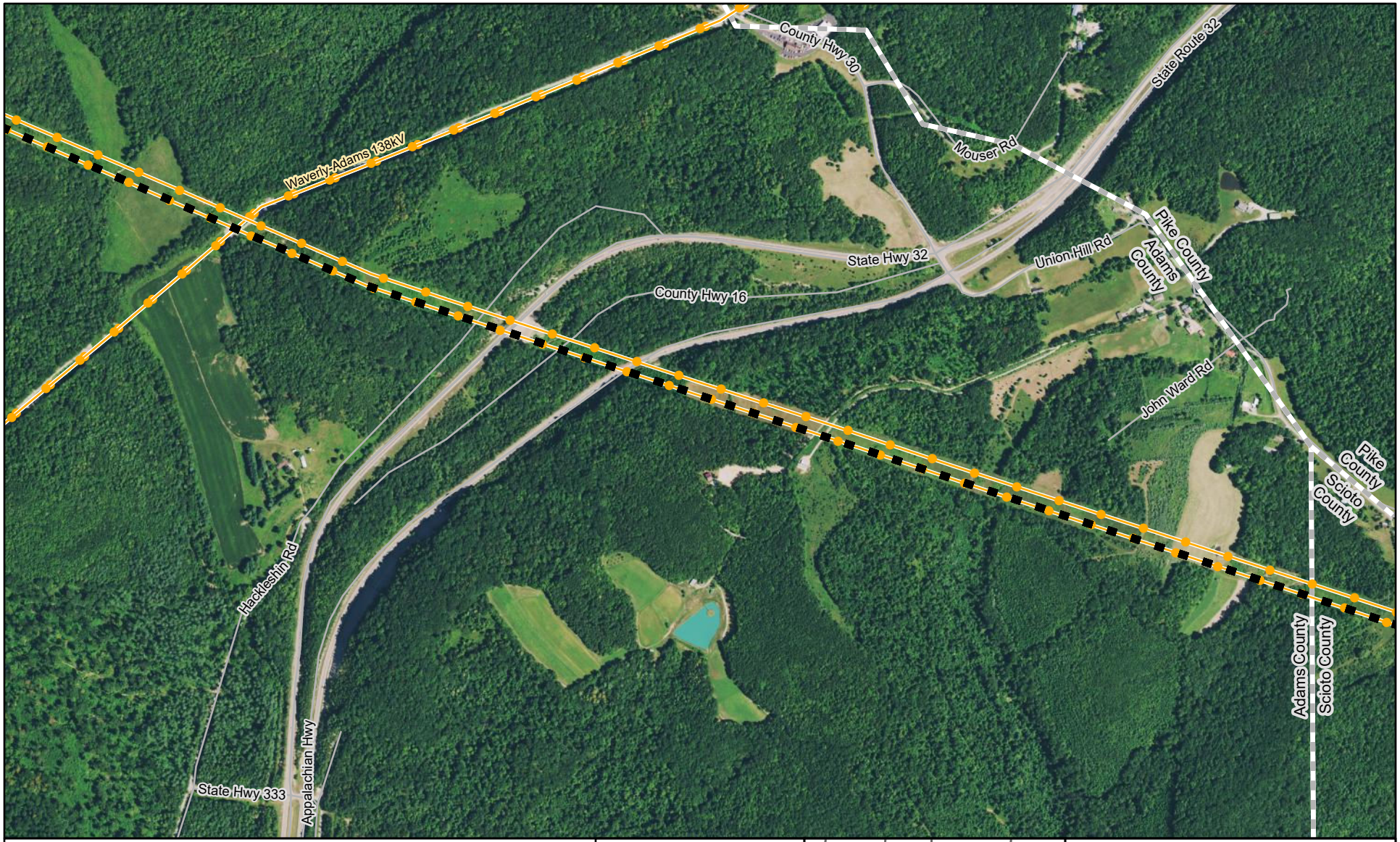


Exhibit 2.11
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.12
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

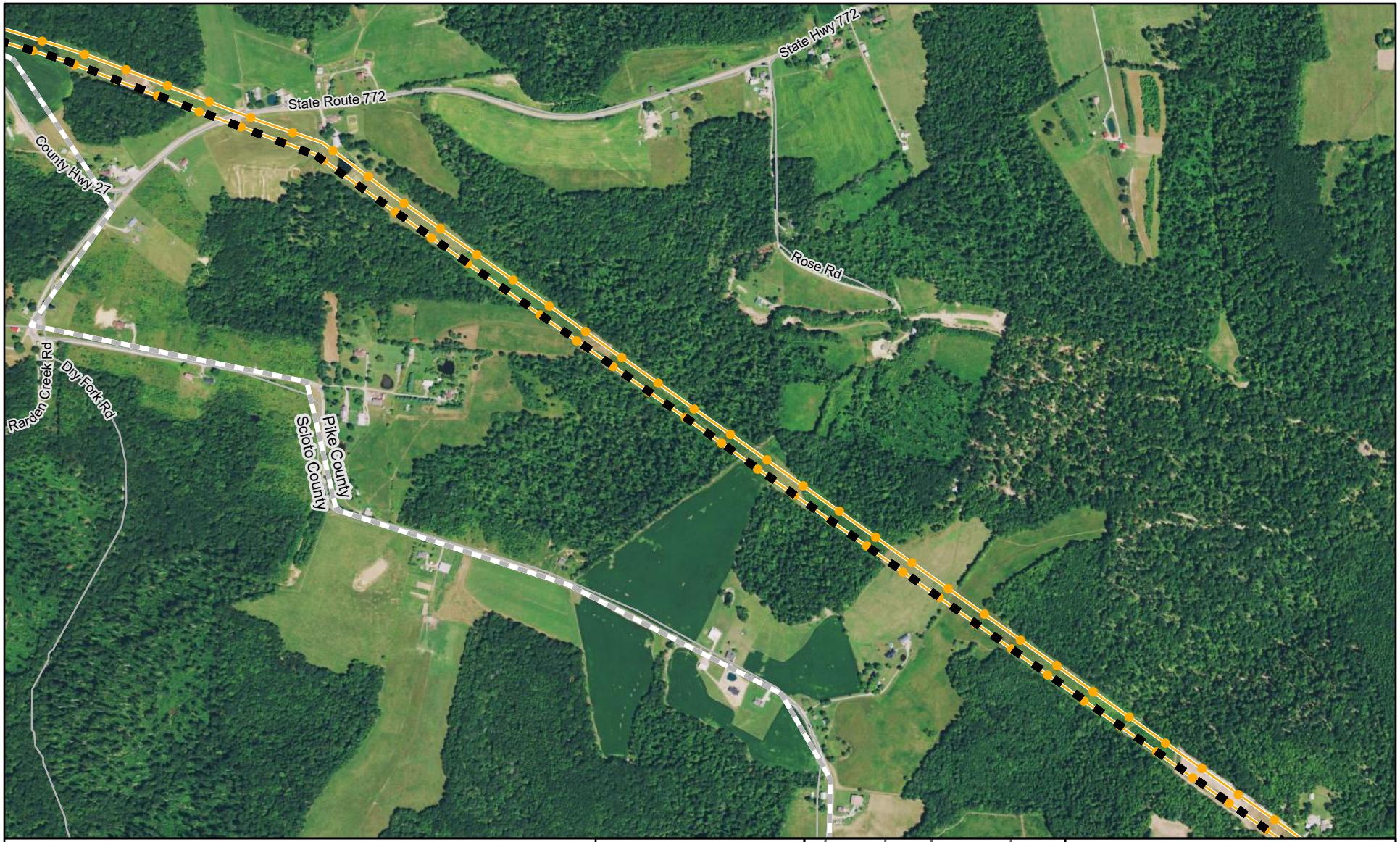


Exhibit 2.13
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.14
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

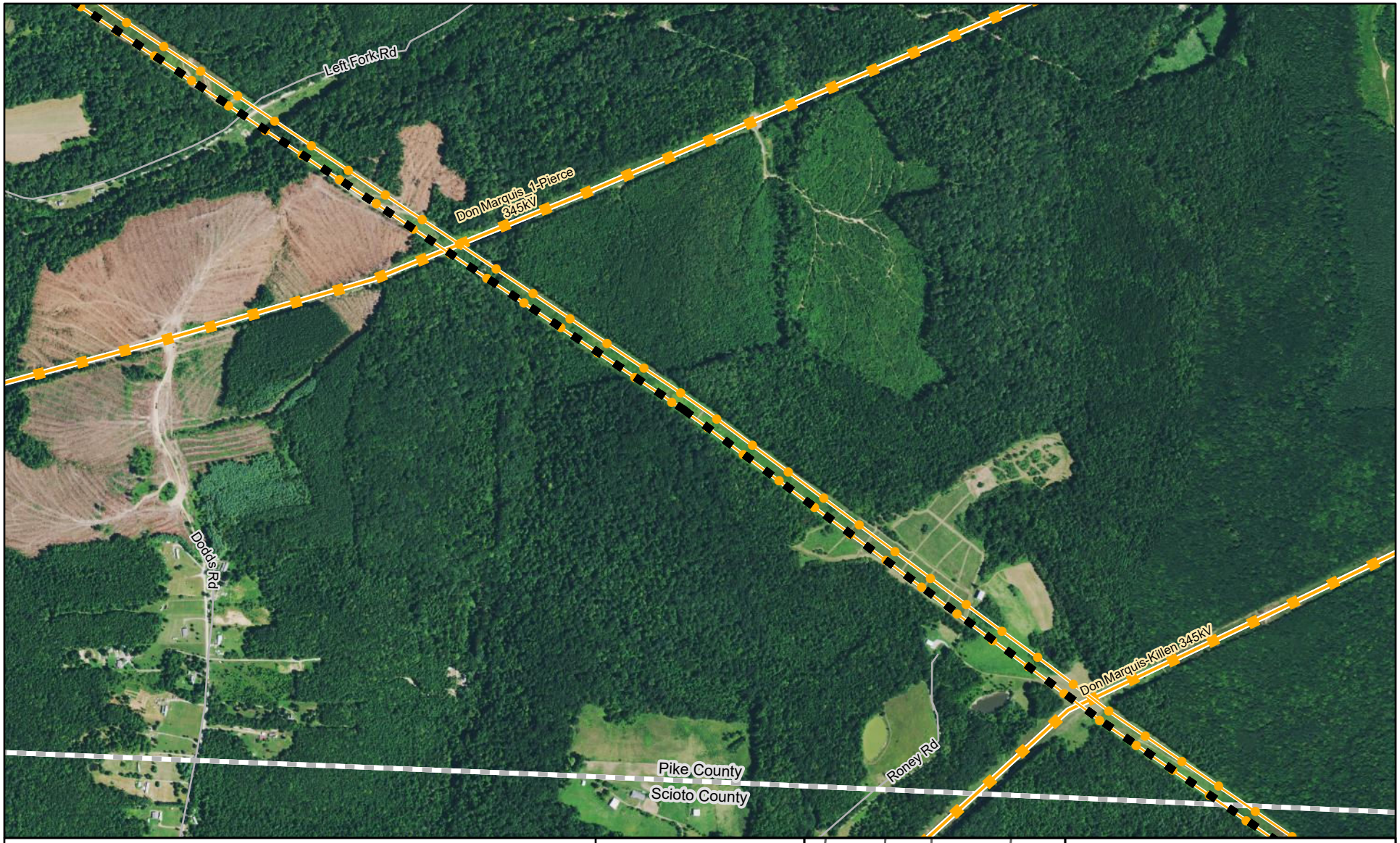


Exhibit 2.15
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.16
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.17
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.18
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

Exhibit 2.19
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

Exhibit 2.20
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.21
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

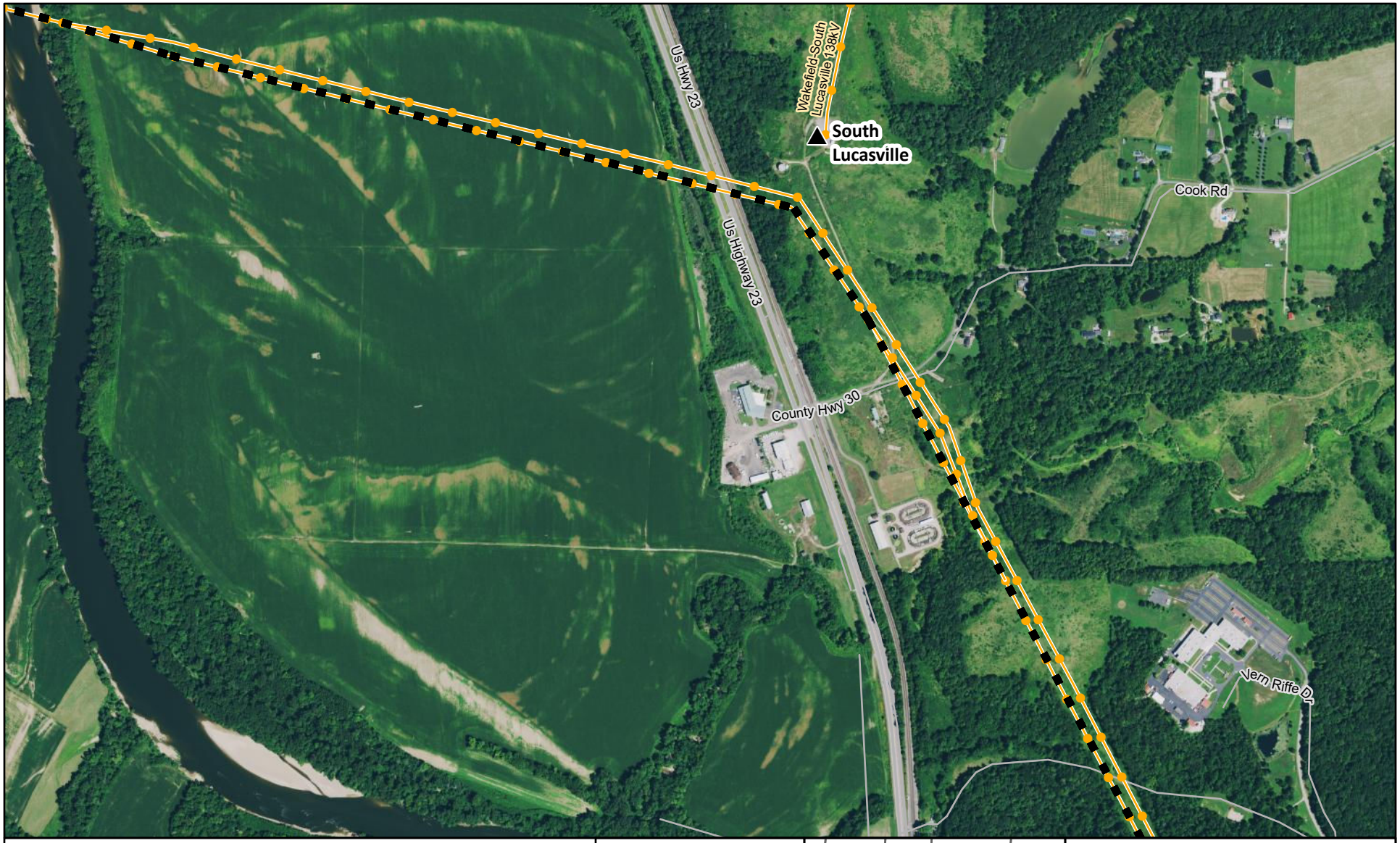
April 21, 2021

Exhibit 2.22
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

Exhibit 2.23
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

Exhibit 2.24
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

Exhibit 2.25
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

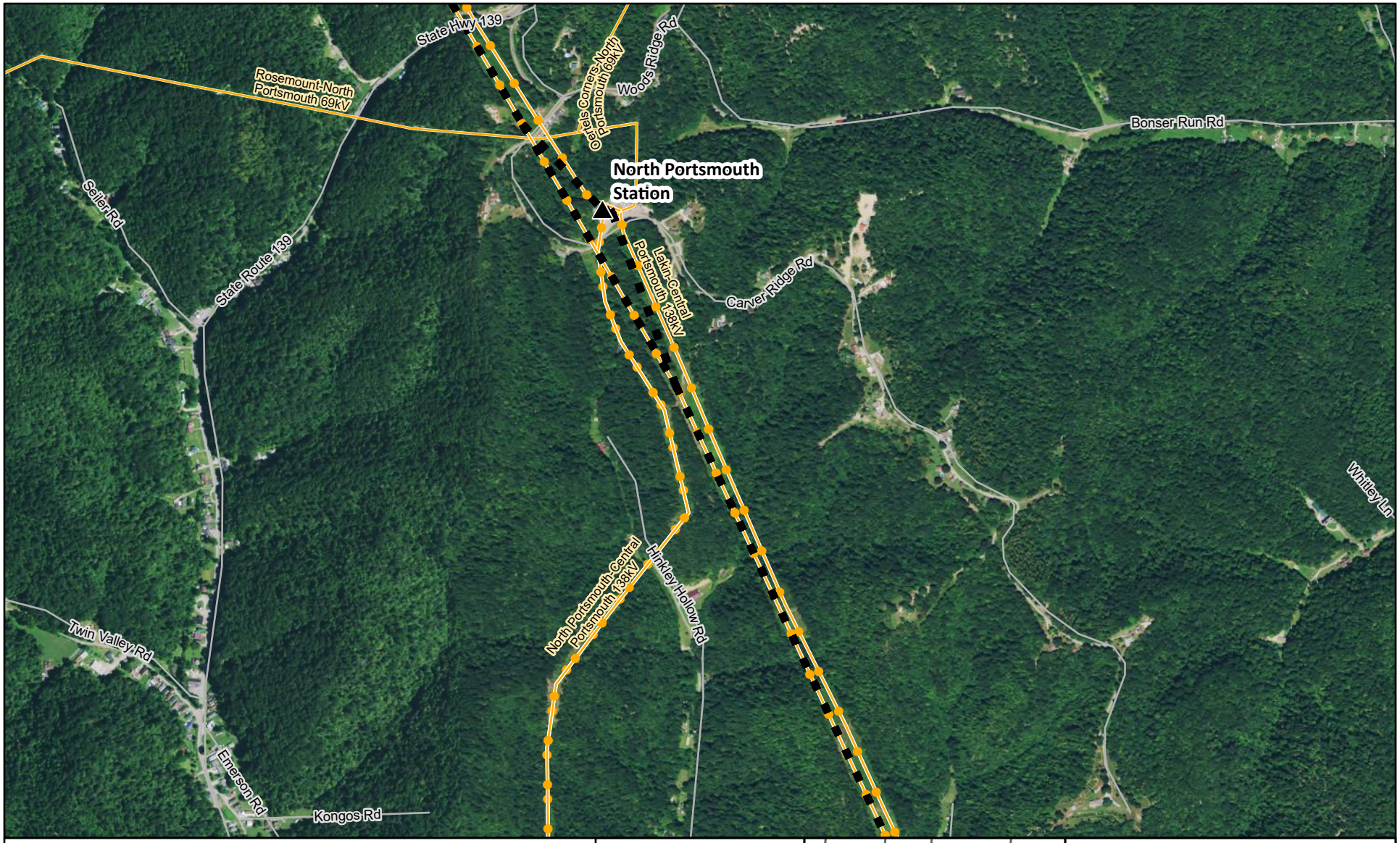


Exhibit 2.26
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.27
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021

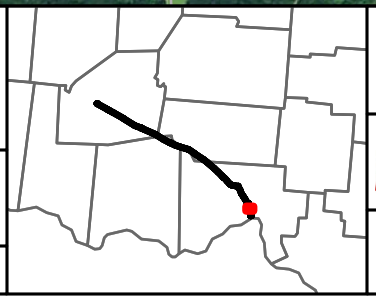
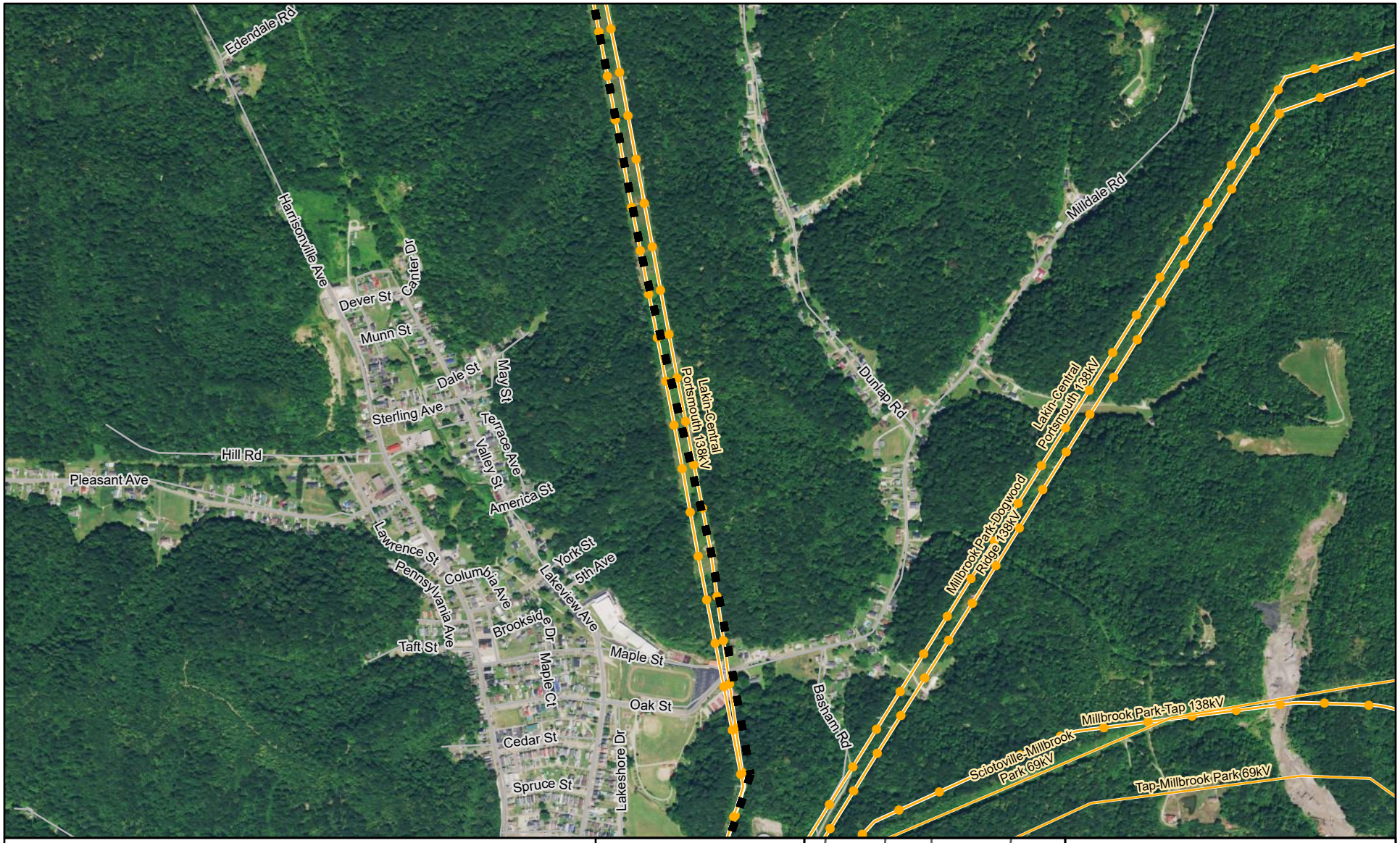


Exhibit 2.28
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.29
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

0 500 1,000
US Feet



Legend

- Existing Substation
- Proposed Switch
- Proposed Route

Existing Transmission Line

- Below 69kV
- 138kV
- 345kV+

- County Boundary
- City Boundary

BASEMAP SOURCE
Esri, USDA Farm Service Agency

NAD 1983 State Plane Ohio South FIPS 3402
Scale: 1:12,000

April 21, 2021



Exhibit 2.30
Existing and Proposed Transmission Line Map

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

0 500 1,000
US Feet

Appendix B PJM Interconnection Submittal

PUCO Form FE-T9
AEP Ohio Transmission Company
Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	Hillsboro - Millbrook Park 138 kV / Millbrook Park - South Lucasville 138 kV (s2251)
POINTS OF ORIGIN AND TERMINATION	Hillsboro, Millbrook Park; INTERMEDIATE STATION - Sinking Springs Sw., Millbrook Park, South Lucasville; INTERMEDIATE STATION - North Portsmouth
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	43.4 miles / 100ft / 1 circuit (of new construction), 8.5 miles / 100ft / 2 circuit (of new construction)
VOLTAGE: DESIGN / OPERATE	138V / 138kV
APPLICATION FOR CERTIFICATE:	LON, 2020/21
CONSTRUCTION:	2022-2024
CAPITAL INVESTMENT:	$126.1M
PLANNED SUBSTATION:	NAME - N/A; TRANSMISSION VOLTAGE - N/A; ACREAGE - N/A; LOCATION - N/A
SUPPORTING STRUCTURES:	Overhead, Steel, Pole
PARTICIPATION WITH OTHER UTILITIES	N/A
PURPOSE OF THE PLANNED TRANSMISSION LINE	Rebuild of existing 138kV line, to address condition, performance, and risk issues
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of further deterioration and performance issues
MISCELLANEOUS:	N/A

AEP Transmission Zone M-3 Process
Hillsboro – Millbrook Park 138 kV Line Rebuild

Need Number: AEP-2019-OH024

Process Stage: Solutions Meeting 02/21/2020

Previously Presented: Needs Meeting 05/20/2019

Supplemental Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption Reference:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 8)

Problem Statement:

- The 1943 Hillsboro – Millbrook Park 138 kV circuit (~52 miles) is wood pole construction and has 1,342 open conditions.
- The majority (93%) of the original conductor (vintage 1944 & 1948) is 477 MCM (26/7) ACSR and is still in-service.
- Half of the wood pole structures from the 1940's are still in-service; the remaining are a mixture from 1960's – 1980's.
- There are additional concerns with the shielding, grounding, and hardware along this 52 mile long line.
- Sinking Springs is in a remote part of AEP's service territory making manual switching difficult.
- Originally installed in 1942-1943 timeframe. 98% of the line is on wood structures.
- Age Profile: 53% from 1940's; 4.4% from 1960's; 13% from 1970's; 27% from 1980's; 2.6% from 2000's

Model: N/A



AEP Transmission Zone M-3 Process
Hillsboro – Millbrook Park 138 kV Line Rebuild

Need Number: AEP-2019-OH024

Process Stage: Solutions Meeting 02/21/2020

Proposed Solution:

Portsmouth – Trenton #1 & #2 138kV Cost: $126.1M

Rebuild 43.4 miles single circuit line between Hillsboro – South Lucasville with 1033 ACSR. **Estimated Cost:$92.5M**

Rebuild 8.5 miles double circuit between Millbrook Park – South Lucasville with 1033 ACSR. **Estimated Cost: $33.6M**

Install a new 3-way 2000A 138kV, phase over phase switch at Sinking Springs. **Estimated Cost: $0.7M**

Total Estimated Transmission Cost: $126.8M

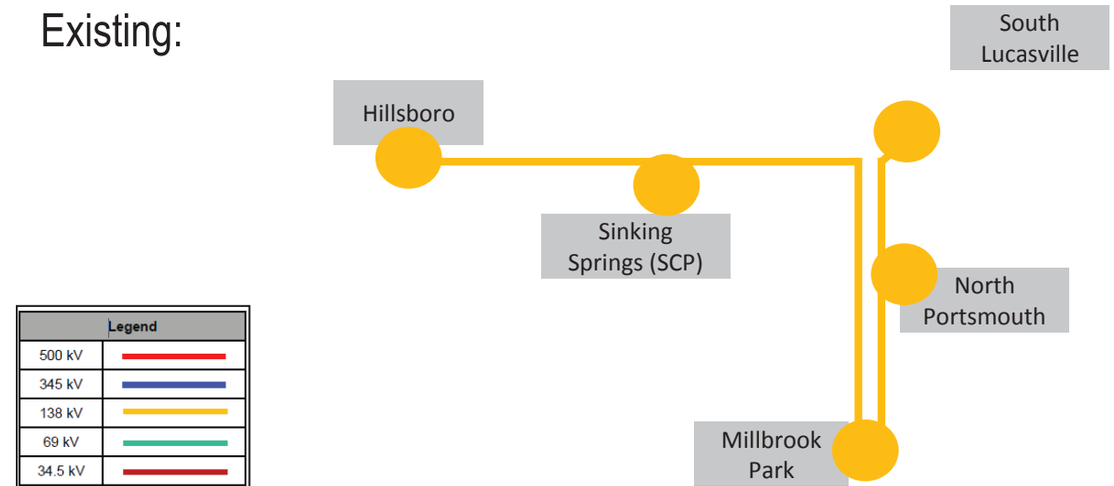
Alternatives Considered:

No viable cost-effective transmission alternative was identified.

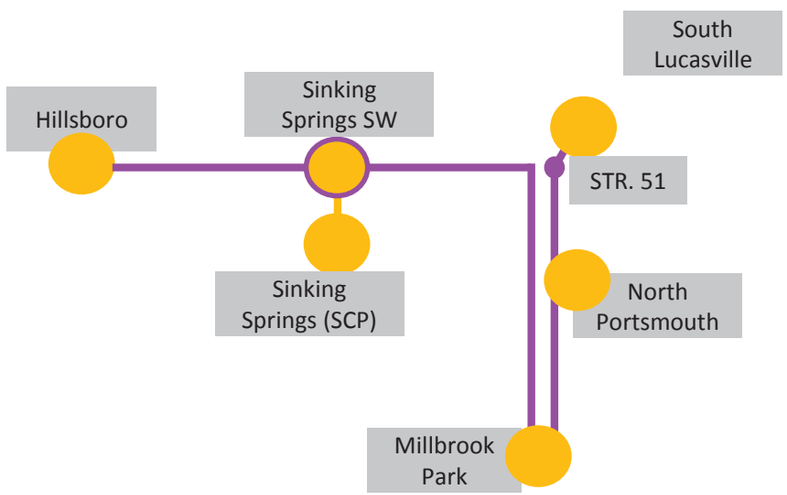
Projected In-Service: 09/30/2022

Project Status: Scoping

Existing:



Proposed:



Appendix C Easement/Options List

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
02-27-000-142.01	Yes
02-26-000-026.00	Yes
28-26-000-081.00	Yes
28-26-000-082.01	Yes
28-26-000-082.00	Yes
28-26-000-083.00	Yes
21-26-000-179.00	Yes
21-26-000-178.00	Yes
21-26-000-176.00	Yes
21-21-000-001.00	Yes
21-21-000-004.00	Yes
21-21-000-005.02	Yes
21-21-000-003.00	Yes
21-21-000-008.00	Yes
21-21-000-023.00	Yes
21-21-000-027.00	Yes
21-21-000-026.00	Yes
21-21-000-026.01	Yes
21-21-000-032.02	Yes
21-21-000-032.01	Yes
21-21-000-037.00	Yes
21-21-000-036.00	Yes
21-21-000-043.02	Yes
21-21-000-043.00	Yes
21-21-000-043.01	Yes
21-21-000-043.00	Yes
21-21-000-042.00	Yes
21-21-100-009.00	Yes
21-21-100-008.00	Yes
43-21-100-010.00	Yes
43-21-100-012.00	Yes
43-21-000-422.00	Yes
43-21-000-422.03	Yes
43-21-000-437.00	Yes
43-21-000-423.00	Yes
43-21-000-435.00	Yes
43-21-000-426.00	Yes
43-21-000-427.00	Yes
43-21-000-428.00	Yes
43-21-000-429.00	Yes
43-21-000-429.01	Yes
43-21-000-409.00	Yes
43-21-000-430.00	Yes
43-21-000-288.01	Yes
43-21-000-403.00	Yes
43-21-000-289.00	Yes

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
44-21-000-291.00	Yes
44-21-000-291.02	Yes
44-21-000-316.00	Yes
44-21-000-318.00	Yes
44-20-000-111.00	Yes
44-20-000-325.01	Yes
44-20-000-109.00	Yes
43-20-000-106.01	Yes
43-20-000-106.05	Yes
44-20-000-104.00	Yes
44-20-000-104.02	Yes
44-20-000-104.03	Yes
44-20-000-104.01	Yes
44-20-000-094.00	Yes
44-20-001-005.00	Yes
44-20-000-089.05	Yes
44-20-000-088.00	Yes
44-20-000-085.02	Yes
44-20-000-278.02	Yes
23-20-000-082.01	Yes
44-20-000-281.00	Yes
23-20-000-082.00	Yes
23-20-000-081.00	Yes
23-20-000-079.00	Yes
23-15-000-125.00	Yes
23-15-000-124.00	Yes
23-15-000-004.00	Yes
30-15-000-312.00	Yes
30-15-000-323.00	Yes
30-15-000-325.00	Yes
30-15-000-325.02	Yes
30-15-000-325.01	Yes
30-15-000-329.00	Yes
30-15-000-327.00	Yes
30-15-000-328.00	Yes
30-15-000-334.00	Yes
30-15-000-335.01	Yes
30-15-000-335.00	Yes
30-15-000-336.00	Yes
30-15-000-387.00	Yes
30-15-000-385.00	Yes
30-15-600-001.00	Yes
30-15-000-366.01	Yes
30-15-000-365.00	Yes
30-15-000-364.00	Yes
30-15-000-422.00	Yes

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
30-14-000-328.05	Yes
30-14-000-328.04	Yes
30-14-000-326.00	Yes
30-14-000-377.00	Yes
05-2492.000	Yes
05-0498.001	Yes
050498002	Yes
05-2402.000	Yes
05-0547.000	Yes
05-0580.000	Yes
05-0315.000	Yes
05-0100.000	Yes
05-2357.001	Yes
05-0313.000	Yes
05-0313.001	Yes
05-0308.001	Yes
05-0308.000	Yes
05-0984.000	Yes
05-0352.000	Yes
05-0355.000	Yes
08-0896.000	Yes
24-0125.000	Yes
24-0458.000	Yes
24-0153.000	Yes
24-0454.000	Yes
24-0478.000	Yes
24-0460.000	Yes
24-0053.000	Yes
24-1648.000	Yes
24-0123.000	Yes
24-1646.000	Yes
24-1672.000	Yes
24-1661.000	Yes
21-0296.000	Yes
22-1628.000	Yes
22-1547.001	Yes
22-1545.006	Yes
22-1547.000	Yes
22-1545.000	Yes
22-1625.000	Yes
22-1580.000	Yes
22-1798.000	Yes
22-1579.000	Yes
22-1580.001	Yes
22-1581.000	Yes
22-1526.000	Yes

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
22-1583.000	Yes
22-1612.000	Yes
21-1710.000	Yes
22-1582.000	Yes
13-0432.000	Yes
13-0434.000	Yes
13-0214.000	Yes
13-0213.000	Yes
13-0022.000, 13-0967.000	Yes
13-0967.000	Yes
13-0020.000	Yes
13-0021.000	Yes
13-0968.000	Yes
13-0352.000	Yes
13-0555.000	Yes
13-0345.000	Yes
13-0460.000	Yes
13-0465.000	Yes
13-0463.000	Yes
13-0988.000	Yes
13-0330.000	Yes
13-0331.000	Yes
13-0332.000	Yes
13-0431.000	Yes
13-0207.000	Yes
13-0208.000	Yes
13-0164.000	Yes
13-0210.000	Yes
13-0358.000	Yes
13-0573.000	Yes
13-0415.001	Yes
13-0370.000	Yes
13-0392.005	Yes
13-0392.006	Yes
13-0392.000	Yes
13-0392.016	Yes
13-0392.015	Yes
13-0392.011	Yes
13-0392.013	Yes
13-0392.008	Yes
13-0726.000	Yes
13-0567.008	Yes
13-0291.000	Yes
13-0567.006	Yes
13-0663.000	Yes
13-0267.000	Yes

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
13-0264.000	Yes
13-0265.000	Yes
13-0263.000	Yes
13-0287.000	Yes
13-0289.000	Yes
13-0063.000	Yes
13-0120.004	Yes
13-0120.003	Yes
13-0268.000	Yes
13-0978.003	Yes
13-0250.000	Yes
13-0354.000	Yes
20-0863.000	Yes
18-0028.000	Yes
20-0874.000	Yes
20-0869.000	Yes
20-0851.000	Yes
20-0871.000	Yes
20-0864.000	Yes
20-0872.000	Yes
18-0122.000	Yes
18-0481.000	Yes
18-0504.004	Yes
18-0503.002	Yes
02-27-000-142.00	Yes
03-27-000-001.00	Yes
03-27-000-018.00	Yes
03-27-000-015.01	Yes
03-27-000-015.02	Yes
03-27-000-012.00	Yes
03-27-000-038.00	Yes
03-27-000-063.00	Yes
03-27-000-057.00	Yes
03-27-000-062.00	Yes
03-27-000-061.04	Yes
03-27-000-152.00	Yes
03-27-000-152.01	Yes
03-27-000-150.00	Yes
03-27-000-150.01	Yes
03-22-000-074.04	Yes
03-22-000-074.00	Yes
03-22-000-074.02	Yes
01-27-000-147.00	Yes
01-27-000-147.04	Yes
01-27-000-147.01	Yes
01-27-000-147.03	Yes

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
01-27-000-147.00	Yes
02-27-000-145.00	Yes
019-00-00-016.000	Yes
019-00-00-015.000	Yes
019-00-00-017.000	Yes
019-00-00-014.001	Yes
019-00-00-011.000	Yes
019-00-00-009.000	Yes
019-00-00-005.000	Yes
019-00-00-010.001	Yes
018-00-00-008.000	Yes
018-00-00-006.000	Yes
018-00-00-004.000	Yes
018-00-00-007.000	Yes
045-00-00-900.000	Yes
018-00-00-020.001	Yes
018-00-00-020.000	Yes
018-00-00-021.000	Yes
018-00-00-022.003	Yes
018-00-00-023.000	Yes
017-00-00-001.000	Yes
017-00-00-002.000	Yes
005-00-00-010.000	Yes
005-00-00-009.000	Yes
005-00-00-004.010	Yes
005-00-00-004.011	Yes
005-00-00-004.000	Yes
005-00-00-004.009	Yes
005-00-00-004.007	Yes
005-00-00-004.008	Yes
005-00-00-006.010	Yes
005-00-00-006.011	Yes
005-00-00-006.006	Yes
005-00-00-006.012	Yes
005-00-00-006.004	Yes
005-00-00-006.002	Yes
005-00-00-006.000	Yes
005-00-00-006.013	Yes
005-00-00-006.003	Yes
005-00-00-008.000	Yes
005-00-00-007.000	Yes
004-00-00-010.000	Yes
40210000000	Yes
40213000000	Yes
40178000000	Yes
40078000000	Yes

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
40294000000	Yes
40446000000	Yes
40446010000	Yes
40425000000	Yes
40189000000	Yes
40004000000	Yes
40516000000	Yes
40352020000	Yes
40390000000	Yes
40105000000	Yes
40106000000	Yes
40107000000	Yes
40042010100	Yes
40042010000	Yes
40042020000	Yes
40044010000	Yes
40044000000	Yes
40510000000	Yes
40520000000	Yes
40586000000	Yes
40128000000	Yes
40012000000	Yes
40578000000	Yes
40129010000	Yes
40129080000	Yes
40129070000	Yes
40643000000	Yes
230098000000	Yes
40159000000	Yes
230242000000	Yes
120303000000	Yes
121015000000	Yes
120336000000	Yes
28-1494.000	Yes
28-1490.000	Yes
28-1224.000	Yes
28-1353.000	Yes
28-0296.000	Yes
34-2645.000	Yes
34-2671.000	Yes
34-2000.000	Yes
34-1693.000	Yes
34-2642.000	Yes
34-2612.000	Yes
34-1767.000	Yes
28-0850.000	Yes

Tax Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
34-1134.000	Yes
34-2478.000	Yes
34-2477.000	Yes
34-2476.000	Yes
34-0915.000	Yes
34-0914.000	Yes
34-0851.000	Yes
34-0852.000	Yes
34-0633.000	Yes
34-0592.000	Yes
05-0328.000	Yes
05-1369.000	Yes
05-0331.000	Yes
05-1368.000	Yes
05-1029.000	Yes
05-0242.000	Yes
05-0816.000	Yes
05-2401.000	Yes
05-0142.000	Yes
05-0277.001	Yes
05-0277.000	Yes
05-0546.001	Yes
05-0546.000	Yes
05-0813.000	Yes
05-1242.000	Yes
05-1241.000	Yes
05-1242.001	Yes
05-0521.000	Yes
05-0818.000	Yes

*The Company may supplement existing rights under all blanket and defined easements identified above.

Appendix D Agency Correspondence

Ohio Department of Natural Resources
MIKE DEWINE, GOVERNOR
MARY MERTZ, DIRECTOR

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

January 22, 2020

Suzann Collins
Jacobs
400 E. Business Way, Suite 400
Cincinnati, Ohio 45241

Re: 19-775; AEP Hillsboro to Millbrook Park Transmission Line Rebuild Project

Project: The proposed project involves the rebuild of approximately 52 miles of existing 138 kV transmission line.

Location: The proposed project is located in Highland, Adams, Pike, and Scioto Counties, Ohio.

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

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

Chaffweed (*Anagallis minima*), T
Long tail moss (*Anomodon viticulosus*), E
Southern hairy rock cress (*Arabis pycnocarpa* var. *adpressipilis*), P
Wall-rue (*Asplenium ruta-muraria*), T
Canada milk vetch (*Astragalus canadensis*), T
Prairie brome (*Bromus kalmii*), P
Bluehearts (*Buchnera americana*), T
Villous panic grass (*Dichanthelium villosissimum*), P
Wedge-leaved whitlow-grass (*Draba cuneifolia*), T
Glade spurge (*Euphorbia purpurea*), E, FSC
Sullivant's bark moss (*Forsstroemia producta*), E
Milk-pea (*Galactia regularis*), P
Ashy sunflower (*Helianthus mollis*), T
Crested coral-root (*Hexalectris spicata*), P
Michaux's glade-cress (*Leavenworthia uniflora*), T
Narrow-leaved pinweed (*Lechea tenuifolia*), P

Slender blazing-star (*Liatris cylindracea*), T
Three-flowered melic (*Melica nitens*), T
Rock sandwort (*Minuartia michauxii*), P
Common prickly pear (*Opuntia cespitosa*), P
Mountain-rice (*Piptatherum racemosum*), P
Wolf's blue grass (*Poa wolfii*), E
Wherry's catchfly (*Silene caroliniana* ssp. *wherryi*), T
Shining ladies'-tresses (*Spiranthes lucida*), P
Mixed mesophytic forest plant community
Oak pine forest plant community
Blue sucker (*Cycleptus elongatus*), T, FSC
Tippecanoe darter (*Etheostoma tippecanoe*), T
Channel darter (*Percina copelandi*), T
River darter (*Percina shumardi*), T
Shovelnose sturgeon (*Scaphirhynchus platorynchus*), E
Henslow's sparrow (*Ammodramus henslowii*), SC, FSC
Chuck-will's-widow (*Caprimulgus carolinensis*), SI
Bewick's wren (*Thryomanes bewickii*), X, FSC
Brush Creek State Forest – ODNR Division of Forestry
Strait Creek Prairie Bluff State Nature Preserve – The Nature Conservancy

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

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

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

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 western 15,000 feet of the project route, and the portion of the project route between the Ohio River and the Scioto River are within the vicinity of records for the Indiana bat (Myotis sodalis), a state endangered and federally endangered species. Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (Carya ovata), shellbark hickory (Carya laciniosa), bitternut hickory (Carya cordiformis), black ash (Fraxinus nigra), green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana), shingle oak (Quercus imbricaria), northern red oak (Quercus rubra), slippery elm (Ulmus rubra), American elm (Ulmus americana), eastern cottonwood (Populus deltoides), silver maple (Acer

saccharinum), sassafras (Sassafras albidum), post oak (Quercus stellata), and white oak (Quercus alba). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31.

The remainder of the project route is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior any to cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the purple cat's paw (*Epioblasma o. obliquata*), a state endangered and federally endangered mussel, the sheepnose (*Plethobasus cyphyus*), a state endangered and federally endangered mussel, the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the pink mucket (*Lampsilis orbiculata*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the little spectaclecase (*Villosa lienosa*), a state endangered mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the elephant-ear (*Elliptio crassidens crassidens*), a state endangered mussel, the butterfly (*Ellipsaria lineolata*), a state endangered mussel, the ebonyshell (*Fusconaia ebena*), a state endangered mussel, the sharp-ridged pocketbook (*Lampsilis ovate*), a state endangered mussel, the washboard (*Megalonaias nervosa*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the pyramid pigtoe (*Pleurobema rubrum*), a state endangered mussel, the yellow sandshell (*Lampsilis teres*), a state endangered mussel, the monkeyface (*Quadrula metanevra*), a state endangered mussel, the wartyback (*Quadrula nodulata*), a state endangered mussel, the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel, the black sandshell (*Ligumia recta*), a state threatened mussel, and the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel.

This project must not have an impact on freshwater native mussels along the project route. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2018), 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 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any

subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2018) can be found at:

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

The project is within the range of the popeye shiner (*Notropis ariommus*), a state endangered fish, the shortnose gar (*Lepisosteus platostomus*), a state endangered fish, the shovelnose sturgeon (*Scaphirhynchus platorynchus*), a state endangered fish, the mountain madtom (*Noturus eleutherus*), a state endangered fish, the northern madtom (*Noturus stigmosus*), a state endangered fish, the goldeye (*Hiodon alosoides*), a state endangered fish, the blue sucker (*Cycleptus elongatus*), a state threatened fish, the American eel (*Anguilla rostrata*), a state threatened fish, the channel darter (*Percina copelandi*), a state threatened fish, the bigeye shiner (*Notropis boops*), a state threatened fish, the Tippecanoe darter (*Etheostoma tippecanoe*), a state threatened fish, the paddlefish (*Polyodon spathula*), a state threatened fish, and the river darter (*Percina shumardi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to 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 these or other aquatic species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. Due to the location, this project is not likely to impact this species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. The DOW recommends that a DOW approved herpetologist conducts a habitat suitability survey along the project route to determine if suitable habitat exists for the timber rattlesnake. If suitable habitat is determined to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist.

The project is also within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. The DOW recommends that a DOW approved herpetologist conducts a habitat suitability survey along the project route to determine if suitable habitat exists for the eastern spadefoot toad. If suitable habitat is determined to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist.

The project is within the range of the mud salamander (*Pseudotriton montanus*), a state threatened species. The DOW recommends that a DOW approved herpetologist conducts a habitat suitability survey along the project route to determine if suitable habitat exists for the mud salamander. If suitable habitat is determined to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist.

The project is within the range of the green salamander (*Aneides aeneus*), a state endangered amphibian. Due to the location, this project is not likely to impact this species.

The project is within the range of the cave salamander (*Eurycea lucifuga*), a state endangered species. Due to the location, this project is not likely to impact this species.

The project is within the range of the Allegheny woodrat (*Neotoma magister*), a state endangered species. The Allegheny woodrat utilizes rocky outcrops such as cliffs and caves in forested areas. Due to the location, this project is not likely to impact this species.

The project is within the range of the lark sparrow (*Chondestes grammacus*), a state endangered bird. This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. In the Oak Openings area west of Toledo, lark sparrows occupy open grass and shrubby fields along sandy beach ridges. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, this project is not likely to impact this species.

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

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

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

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

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

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

Mike Pettegrew
Environmental Services Administrator (Acting)

Ohio Division of Wildlife
APPROVED HERPETOLOGISTS

The following individuals are approved to conduct habitat suitability surveys and presence/absence surveys for the state listed reptiles and amphibians specified below.

Ramsey Langford
3023 Colon Dr.
Copley, Ohio 44321
ramseylangford@gmail.com
330-447-4840

Approved for:
- Spotted turtle (*Clemmys guttata*)
- Blanding's turtle (*Emydoidea blandingii*)
- Smooth greensnake (*Opheodrys vernalis*)

Teal Dimitrie
3054 Kensington Rd.
Cleveland Heights, Ohio 44118
trichards-dimitrie@enviroscienceinc.com
586-846-0087

Approved for:
- Spotted turtle (*Clemmys guttata*)
- Blanding's turtle (*Emydoidea blandingii*)

Michael Hoggarth
Department of Biology and Earth Science
Otterbein University
Westerville, Ohio 43081
mhoggarth@otterbein.edu
614-823-1667

Approved for:
- Green salamander (*Aneides aeneus*)
- Lake Erie watersnake (*Nerodia sipedon insularum*)
- Eastern hellbender (Cryptobranchus alleganiensis)

Matthew Cross
1736 C Dublin Ct.
Bowling Green, Ohio 43402
eobsoleta01@gmail.com
616-240-6486

Approved for:
- Blanding's turtle (*Emydoidea blandingii*)
- Kirtland's snake (*Clonophis kirtlandii*)

Thomas Pauley
4525 Este Ave.
Cincinnati, Ohio 45232
tpauley@envsi.com
513-451-1777

Approved for:
- Green salamander (*Aneides aeneus*)
- Timber rattlesnake *(Crotalus horridus)*

Bruce Kingsbury
2224 Springfield Ave.
Fort Wayne, Indiana 46805
bruce.kingsbury@ipfw.edu
260-341-2013

Approved for:
- Eastern massasauga (Sistrurus catenatus catenatus)
- Kirtland's snake (Clonophis kirtlandii)
- Blanding's turtle (Emydoidea blandingii)
- Spotted turtle (Clemmys guttata)
- Copper-bellied watersnake (Nerodia erythrogaster neglecta)

Please direct questions concerning this list to: wildlife.permits@dnr.state.oh.us

April 2019

Nicholas Smeenk
2158 Northern Rd.
Columbus, Ohio 43221
614-354-7890

Approved for:
- Eastern massasauga (Sistrurus catenatus catenatus)
- Eastern hellbender (Cryptobranchus alleganiensis)

The following individuals are approved to conduct habitat suitability surveys and presence/absence surveys for all state listed reptiles and amphibians.

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542 Centerfield Drive
Maumee, Ohio 43537
kbekker@gmail.com
419-376-4384

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440-243-7568

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tmatson@cmnh.org
440-417-8196

Jeff Davis
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ohiofrogs@gmail.com
513-868-3154

Gregory Lipps, LLC
1473 County Road 5-2
Delta, Ohio 43515-9657
greglipps@gmail.com
419-376-3441

Doug Wynn
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Russell's Point, Ohio 43348
Sistrurus@aol.com
614-306-0313

Kristin Stanford
OSU Stone Laboratory
P.O. Box 119
Put-in-Bay, OH 43456
theislandsnakelady@yahoo.com
419-285-1847

Please direct questions concerning this list to: wildlife.permits@dnr.state.oh.us

April 2019

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

March 4, 2021

Suzann Collins
Jacobs

TAILS# 03E15000-2019-TA-2039

Re: AEP Hillsboro to Millbrook Park Transmission Line Rebuild Project, Highland, Adams, Pike and Scioto Counties, OH

Dear Ms. Collins,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other

forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

The proposed project is in the vicinity of one or more confirmed records of Indiana bats. Portions of the line in southern Scioto County are in Indiana bat hibernaculum buffers and roost tree buffers; the northern section of the line in Highland County is within many capture buffers of male and female Indiana bats and roost trees of these bats; portions of the project are also within capture buffers of Northern long-eared bats. We understand that the majority of the transmission line rebuild is occurring on existing right-of way that is already cleared. However due to the numerous bat records in these portions of the project area, additional information is needed to evaluate this project. **The Service requests additional information on the extent of tree clearing proposed along portions of the line in Scioto and Highland Counties so that we may evaluate the potential for the project to effect the Indiana and northern long-eared bat and recommend appropriate minimization measures.** ***Please provide estimated acreages of forest clearing as well as maps indicating areas to be cleared.***

The endangered rayed bean (*Villosa fabalis*), a freshwater mussel, is known to occur in Scioto Brush Creek and the Scioto River, both of which will be spanned by the transmission line. The rayed bean is usually found in or near shoal or riffle areas, and in the shallow, wave-washed areas of lakes. Substrates typically include gravel and sand, and they are often associated with, and buried under the roots of, vegetation, including water willow (*Justicia americana*) and water milfoil (*Myriophyllum* sp.). Additionally, the endangered clubshell (*Pleurobema clava*) and northern riffleshell (*Epioblasma torulosa rangiana*) mussels are also known to occur in the Scioto River. The clubshell and northern riffleshell inhabit areas with sand or gravel substrate and also prefer areas with riffles and runs.

Should the proposed project directly or indirectly impact any of the mussel streams listed above, we recommend that a survey be conducted to determine the presence or probable absence of rayed bean mussels in the vicinity of the proposed site. Any survey should be designed and conducted in coordination with the Ohio Field Office. Surveyors must have valid Federal and State permits to survey for federally listed mussels in Ohio. If any impact to native riparian vegetation is proposed we recommend further coordination with our office to determine if impacts to these mussel species may occur. Best management practices that minimize stormwater runoff and erosion should be diligently implemented in these areas.

The proposed project lies within the range of Virginia spiraea (*Spiraea virginiana*), a federally listed threatened species. This plant is generally found in riparian habitats along rocky streambanks or sandbars. This species requires a habitat characteristic of flooding and subsequent deposition for successful colonization. Known populations of Virginia spiraea in Ohio occur on large, long-established gravel bars in Scioto County, along Scioto Brush Creek. The current alignment occurs in a township where the species is known to occur, but does not cross the creek in this township. At this time it does not appear that the project will impact this species, however if the alignment were to be modified, further coordination with this office is requested.

The proposed project lies within the range of running buffalo clover (*Trifolium stoloniferum*), a federally listed endangered species that was recently proposed for delisting due to recovery. This species can be found in partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails and in right-of-ways. Running buffalo clover requires periodic disturbance and a somewhat open habitat to successfully flourish, but cannot tolerate full-sun, full-shade, or severe disturbance.

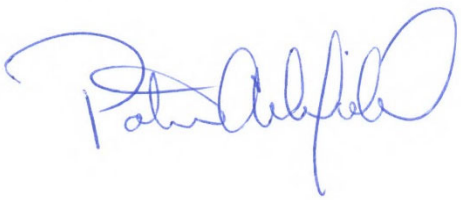
If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend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

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.#

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

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,



Patrice M. Ashfield
Field Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

In reply, refer to
2020-MLT-49570

October 22, 2020

Mr. Ryan J. Weller
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212

RE: Hillsboro-Millbrook 138kV Rebuild Project, Adams, Highland, Pike, and Scioto Counties, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on September 23, 2020 regarding the proposed Hillsboro-Millbrook 138kV Rebuild Project, Adams, Highland, Pike, and Scioto Counties, 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 4906-5). 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 *Phase I Archaeological Investigations for the 83.7 km (52 mi) Hillsboro-Millbrook 138kV Rebuild Project in Highland, Adams, Pike, and Scioto Counties, Ohio* by Ryan J. Weller (Weller & Associates, Inc., 2020).

A literature review, visual inspection, surface collection, shovel probe and shovel test unit excavation was completed as part of the investigations. Five (5) previously identified archaeological sites are located within the project area, Ohio Archaeological Inventory (OAI) #33SC0523, 33HI0219, and 33HI0395-33HI0397. OAI#33HI0219 is recommended for avoidance or additional investigations. The four (4) other previously identified archaeological sites are recommended not eligible for listing in the National Register of Historic Places (NRHP). Our office agrees with this recommendation.

Twenty (20) new archaeological sites were identified during survey. OAI#33SC0653-33SC0657, 33PK0442-33PK0443, and 33HI0478-33HI0489 are recommended not eligible for listing in the NRHP. OAI#33SC0658 is recommended for avoidance or additional investigations. Our office agrees with these recommendations.

The following comments pertain to the *History/Architecture Investigations for the 83.7 km (52 mi) Hillsboro-Millbrook 138kV Rebuild Project in Highland, Adams, Pike, and Scioto Counties, Ohio* by Austin White and Scott McIntosh (Weller & Associates, Inc., 2020).

A literature review and field survey were completed as part of the investigations. A total of 282 resources fifty years of age or older were newly identified and four extant Ohio Historic Inventory (OHI) properties were identified within the Area of Potential Effects during the field survey.

It is Weller's recommendation that four of the properties identified are eligible for listing in the National Register of Historic Places: SCI0073513 (Criterion C); HIG0000317 (Criteria A and C); HIG0001417 (Criteria A and B); and HIG0001517 (Criterion B). Our office agrees with Weller's recommendations regarding eligibility. Due to the nature of the project as a rebuild and replacement of the existing transmission line, we agree that the project as proposed will have no adverse effect on these historic properties.

RPR Serial No: 1085659, 1085660

In summary, two (2) archaeological sites, OAI#33HI0219 and 33SC0658, are recommended for avoidance or additional investigations. It is our understanding that a portion of the project area was inaccessible for archaeology survey do to landowner restrictions. Testing is scheduled in February 2021. Our office looks forward to additional coordination after this testing can take place.

If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorrocks@ohiohistory.org, or Joy Williams at jwilliams@ohiohistory.org. Thank you for your cooperation.

Sincerely,



Krista Horrocks, Project Reviews Manager
Resource Protection and Review

RPR Serial No: 1085659, 1085660

In reply, refer to
2020-MLT-49570

November 25, 2020

Mr. Ryan J. Weller
Weller & Associates, Inc.
1395 West Fifth Avenue
Columbus, Ohio 43212

RE: Hillsboro-Millbrook 138kV Rebuild Project, Highland County, Ohio – Phase II Archaeological Assessment at Site 33HI0219

Dear Mr. Weller:

This letter is in response to the correspondence received on November 20, 2020 regarding the proposed Hillsboro-Millbrook 138kV Rebuild Project, Highland County, Ohio, specifically the Phase II Archaeological Assessment at Site 33HI0219. 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 4906-5). 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 *Phase II Archaeological Assessment at Site 33HI0219 within the Proposed Hillsboro-Millbrook 138kV Rebuild Project in Highland County, Ohio* by Joshua Engle (Weller & Associates, Inc., 2020).

Our office reviewed and accepted the proposed Phase II scope of work on November 2, 2020. Geophysical investigation, close-interval shovel testing, and 1x1 meter test unit excavations was completed as part of the investigations. After additional investigations, Ohio Archaeological Inventory (OAI) #33HI0219 is recommended not eligible for listing in the National Register of Historic Places (NRHP). Our office agrees with this recommendation. Please ensure the OAI form for 33HI0219 has been updated for SHPO review.

One (1) archaeological site, OAI#33SC0658, is still recommended for avoidance or additional investigations. It is our understanding that a portion of the project area was inaccessible for archaeology survey do to landowner restrictions. Testing is scheduled in February 2021. Our office looks forward to additional coordination after this testing can take place.

If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorrocks@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

RPR Serial No: 1086349

Appendix E Ecological Resources Inventory Report

Wetland and Waterbody Delineation Report

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Highland, Adams, Pike and Scioto Counties, Ohio

Prepared for

AEP TRANSMISSION℠

An AEP Company

BOUNDLESS ENERGY℠

April 2021

Jacobs

2 Crowne Point Court, Suite 100 Cincinnati, OH 45241

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C	Qualitative Habitat Evaluation Index (QHEI) Stream Data Forms
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E	OAC Chapter 3745-1 Stream Representative Photographs
F	Jacobs Open Water/Pond Data Forms

1 Introduction

This wetland and waterbody delineation report (Report) summarizes the results of the wetland and waterbody delineation surveys conducted in Highland, Adams, Pike and Scioto counties by Jacobs Engineering Group, Inc. (Jacobs) for AEP Ohio Transmission Company, Inc.'s (AEP) Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project (Project). AEP is proposing to rebuild approximately 52 miles of existing 138 kV transmission line within existing AEP right-of-way (ROW) with few exceptions (minor shifts to meet AEP's reliability standards for the transmission line). In addition, a new switch structure is proposed near Sinking Springs, OH. The 138 kV overhead electric transmission line starts at the Hillsboro Station and extends generally southeast, ending at the Millbrook Park Station. The overall Project alignment is depicted on the Figure 1 Overview Map. Jacobs conducted environmental surveys in September through October 2019 and follow-up surveys in January 2020 and December 2020 to collect supplemental data. The environmental survey corridor (ESC), which included AEP's existing right-of-way (ROW), was 100 feet wide in the northwesternmost 4.8 miles, and 200 feet wide throughout the remaining extent of ROW.

This wetland and waterbody delineation report contains the following components:

- Figure 1 provides an overview map of the ESC overlain on U.S. Geological Survey (USGS) topographic maps.
- Figures 2-1 through 2-110 show U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, National Wetland Inventory (NWI) information, National Hydrology Dataset (NHD) information, and Federal Emergency Management Agency (FEMA) floodplain information. Table 3-1 (in Table Appendix) lists the soils types identified within the ESC.
- Figures 3-1 through 3-110 provide the location of all features mapped during the delineation by Jacobs' biologists within the ESC. This includes all wetlands, data points, waterbodies, and ponds. Tables 4-1, 4-2, 4-3, 4-4, and 4-5 provide feature summary information for all wetlands, streams, and ponds delineated within the ESC.
- U.S. Army Corps of Engineers (USACE) wetland determination field data forms are in Appendix A.
- Ohio Rapid Assessment Method for Wetlands (ORAM) two-page forms are in Appendix B.
- Qualitative Habitat Evaluation Index (QHEI) stream data forms for each stream identified with a drainage area of 1 square mile or greater are in Appendix C.
- Primary Headwater Habitat Evaluation Index (HHEI) stream data forms for each stream identified with a drainage area less than 1 square mile are in Appendix D.
- Representative photographs of OAC Chapter 3745-1 streams are in Appendix E.
- Jacobs' Open Water/Pond data forms for each open water feature identified are in Appendix F.

2 Background Information

This section provides a general description of the Project environmental survey corridor and methodologies used during the wetland and waterbody delineation field surveys.

2.1 Project Area

The Project is located in Highland, Adams, Pike and Scioto Counties, Ohio. The ESC begins at Hillsboro Station, approximately 370 feet northwest of County Road 7 in Highland County (near 39.17341 latitude, -83.67781 longitude), and extends southeast terminating at Millbrook Park Station, located south of County Route 52 in Scioto County (near 38.75322 latitude, -82.92894 longitude; Figure 1). The ESC is approximately 52 miles long, 100 feet wide in the northwestern most 4.8 miles, and 200 feet wide throughout the remaining extent of the ROW. The survey corridor totaled approximately 1,193 acres.

Review of the USGS 7.5 minute topographic maps of the area indicated that multiple ditches, streams, and rivers drain the ESC, including Elm Run, Elk Run, Middle Fork Ohio Brush Creek, Baker Fork, Scioto River, Candy Run, Munn Run, and multiple unnamed tributaries of these waterways. The Project area has a rolling topography, with elevations ranging between 600 feet and 1,200 feet above mean sea level throughout the ESC (Figure 1).

Land use and natural communities observed within the ESC includes agricultural land, roadways, industrial (including electrical substations), residential, old field, upland forest, upland scrub shrub, palustrine emergent (PEM) wetland, and palustrine scrub-shrub (PSS) wetland, in addition to the previously identified waterbodies.

2.1.1 Annual Precipitation

Rainfall data for weather stations in the Agricultural Applied Climate Information System (AgACIS) was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Hillsboro, West Union 6 ENE, Piketon, and Portsmouth were the nearest weather stations with both historical and recent precipitation records. Precipitation recorded in the Project area indicated above normal annual precipitation totals for all weather stations in 2019 and 2020. Table 2-1 presents the climatic conditions for Highland, Adams, Pike and Scioto Counties. These were taken into consideration when conducting the wetland delineation.

TABLE 2-1: Recent Precipitation Data

Hillsboro to Millbrook Park 138kV Transmission Line Rebuild Project

Precipitation Data[1]	September 2019	October 2019	Annual Totals 2019	January 2020	December 2020	Annual Totals 2020
Highland County						
Hillsboro, OH Monthly Total Precipitation	0.49	4.09	57.14	2.35	3.06	50.85
Hillsboro, OH Monthly Total Precipitation Normal	3.13	3.05	42.56	3.13	3.25	42.56
Hillsboro, OH Monthly climatic condition	below normal	above normal	above normal	below normal	below normal	above normal
Adams County						
West Union 6 ENE, OH Monthly Total Precipitation	0.54	5.16	57.36	2.89	2.27	48.11
West Union 6 ENE, OH Total Precipitation Normal	3.01	3.17	44.39	3.33	3.42	44.39
West Union 6 ENE, OH Monthly climatic condition	below normal	above normal	above normal	below normal	below normal	above normal

Pike County						
Piketon, OH Monthly Total Precipitation	0.91	3.79	51.28	2.60	2.23	48.63
Piketon, OH Total Precipitation Normal	2.77	2.90	40.43	3.17	3.31	40.43
Piketon, OH Monthly climatic condition	below normal	above normal	above normal	below normal	below normal	above normal
Scioto County						
Portsmouth, OH Monthly Total Precipitation	0.77	6.36	54.72	3.47	3.15	46.30
Portsmouth, OH Total Precipitation Normal	2.67	2.64	40.88	3.05	3.23	40.88
Portsmouth, OH Monthly climatic condition	below normal	above normal	above normal	above normal	below normal	above normal

Source: AgACIS, 2021
[1]Displayed in inches

2.1.2 Drainage Basins

The ESC crosses four 8-digit Hydrologic Unit Code (HUC) watersheds, including Little Scioto-Tygarts (05090103), Lower Scioto (05060002), Ohio Brush-Whiteoak (05090201), and Paint (05060003). The ESC crosses fifteen 12-digit HUCs, as outlined in Table 2-2 (USGS, 2020).

TABLE 2-2: HUCs Crossed by the Project

Hillsboro – Millbrook Park 138 kV Transmission Line Rebuild Project

HUC 12-Digit Code	HUC 12-Digit Name
Baker Fork	050902010303
Big Run-Scioto River	050600021602
Camp Creek	050600021601
Chenoweth Fork	050600021205
Elk Run	050902010302
Headwaters Ohio Brush Creek	050902010301
Headwaters Rocky Fork	050600030503
Little East Fork Ohio Brush Creek-Ohio Brush Creek	050902010501
Long Run	050901030602
Middle Fork Ohio Brush Creek	050902010304
Miller Run-Scioto River	050600021603
Munn Run-Ohio River	050901030606
Rarden Creek	050600021502
South Fork Rocky Fork	050600030501
Wards Run-Little Scioto River	050901030605

Source: USGS 2020

2.1.3 Navigable Waters Protection Rule

The United States Environmental Protection Agency (USEPA) and the Department of the Army published the Navigable Waters Protection Rule on April 21, 2020 (33 CFR Part 328, effective June 22, 2020). In this final rule, the agencies interpret the term “waters of the United States” to encompass: “the territorial seas and traditional navigable waters (TNWs); perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters” (USEPA and USACE, 2020). The final rule has not modified the definition of TNWs. One TNW, the Scioto River, crosses the Project ESC.

2.1.4 Nationwide Permits – Ohio 401 Water Quality Certification

The USACE issued its final rule on January 13, 2021, modifying and reissuing 12 existing nationwide permits (NWPs) and issuing four entirely new NWPs, which went into effect on March 15, 2021 (Schirra, 2021). The USACE determined that the Ohio Environmental Protection Agency waived its certification for the 2021 NWPs, and therefore there is no corresponding 401 WQC permitting obligation for the 16 NWPs, including NWP 57 – Overhead Utilities. The status of Ohio's 401 WQC requirements for specific NWPs may be subject to change and should be reviewed for permitting purposes as needed.

3 Wetland and Waterbody Delineation

3.1 Desktop Review

Prior to conducting the field investigations, Jacobs reviewed the following resources to identify the potential for wetlands and streams within the ESC:

- Aerial photo-based maps (ArcGIS Online "World Imagery" Basemap (AGOL, 2019a)
- USGS topographic maps (ArcGIS Online "USA Topo" Basemap (AGOL, 2019b)
- NRCS Web Soil Survey (NRCS, 2019)
- NWI maps (USFWS, 2019a)
- National Hydrography Dataset (NHD) (USGS, 2019)

According to the NRCS soil surveys of Highland, Adams, Pike and Scioto Counties (NRCS, 2019), 139 soil map units are crossed by the ESC. Of the 139 soil map units, 121 are listed as non-hydric, 16 are listed as predominately non-hydric, and two are listed as predominantly hydric (Figure 2-1 to 2-110; Table 3-1 in Table Appendix). NRCS data indicated that non hydric soils comprised 1,105 acres, which is 93 percent of the ESC. Seventy-eight acres or 7 percent is comprised of predominantly non-hydric soils, while 10 acres or 1 percent is comprised of predominantly hydric soils.

Generally, hydric soils are those soils that indicate through their color and structure that they have experienced dominantly reducing (i.e. oxygen poor) conditions. Oxygen-poor conditions result from inundation and/or saturation by water. Partially hydric soils have both hydric and non-hydric soil components identified in the mapped soil unit.

NWI data was obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2019) identifies the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The NWI data indicates that there are mapped freshwater wetlands, freshwater ponds, and riverine systems present within the ESC including PEM1A, PEM1F, PFO1A, PSS1A, PUBGh, PUBGx, R2UBH, R2UBHh, R2UBHx, R4SBC, R4SBCx, and R5UBH (Figure 2-1 to 2-110) (USFWS 2019). The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The information on NWI maps is obtained largely from aerial interpretation, may be outdated, and is only sporadically field-checked. Additional details regarding the mapped NWI wetlands within the ESC are provided in Table 3-2 (Table Appendix).

As shown on the FEMA floodplain panels (Figures 2-1 to 2-110), the ESC crosses the FEMA-mapped 100-year floodplain of seven waterbodies including: Elm Run, Elk Run, Middle Fork Ohio Brush Creek, Baker Fork, Scioto River, Candy Run, and Munn Run. In addition, the ESC crosses one mapped FEMA floodway, the Scioto River (FEMA, 2020).

3.2 Field Survey Methodology

From September through October 2019, Jacobs' biologists surveyed the majority of the ESC by walking the corridor and evaluating for wetlands and other waterbodies. The remaining portions of the ESC were surveyed in January 2020 and December 2020.

The boundaries of each wetland and waterbody within the ESC were delineated and recorded using handheld global positioning system (GPS) units. For streams identified within the Project area, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

Wetland, stream, and pond data were recorded on USACE Regional Supplement wetland determination data forms, Headwater Habitat Evaluation Index (HHEI) forms and Qualitative Habitat Evaluation Index (QHEI)

forms, and Jacobs' standard open water/pond data forms, respectively. All other land use, habitat, and other supplemental data was collected in a field notebook during the environmental survey.

3.2.1 Wetland Delineation

Wetland boundaries were field-delineated according to Section 404 of the Clean Water Act (CWA) and the routine onsite methodology described in the Technical Report Y-87-1 *Corps of Engineers' Wetlands Delineation Manual* and subsequent guidance documents (USACE, 1987) and according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012*)*. Representative wetland and upland data points were recorded during the wetland delineation to determine the presence/absence of wetlands and/or document upland conditions within the Project area. Upland data points were determined not to be within wetlands because they did not have positive indicators of one or more of the three wetland criteria: hydrophytic vegetation, wetland hydrology, and hydric soils.

Wetland quality was evaluated using the OEPA Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000). Jacobs commonly assesses each Cowardin component of a wetland complex with a separate USACE wetland determination form. However, the ORAM evaluates the larger wetland complex as a unit and as a result each wetland component within a complex will receive the same ORAM score.

3.2.2 Stream Assessment

Jurisdictional streams were identified as those waters that possessed a continuously defined bed and bank, OHWM indicators, and lacked a dominance of upland vegetation in the channel. Per USACE guidance, the OHWM is defined as the "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). Channels that parallel a roadway or railroad were identified as upland drainage features and were not considered to be jurisdictional unless they had an identifiable OHWM, were identified on the USGS topographic map, or represented a presumed relocation of a natural channel.

During the field survey, functional 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* (OEPA, 2006) and in the OEPA's Field Methods for Evaluating Primary Headwater Streams (OEPA, 2018). The Qualitative Habitat Evaluation Index (QHEI), is used to characterize larger streams (drainage areas greater than 1 square mile), while the Primary Headwater Habitat Evaluation Index (HHEI) is appropriate for first-order and second-order headwater streams (drainage areas less than 1 square mile).

4 Field Survey Results

Jacobs' biologists surveyed the ESC in September through October 2019 as well as follow-up surveys in January 2020 and December 2020 by walking the corridor and evaluating for wetlands and other waters of the U.S. A total of 72 wetlands, 219 streams, and 14 ponds were delineated within the ESC. The features identified within the ESC are displayed and identified on the Delineated Features Map (Figure 3-1 through Figure 3-110).

Detailed information for wetland, stream, and pond features within the ESC is provided in Tables 4-1, 4-2, and 4-3 respectively. Jacobs defaults to the USACE and OEPA for the final determination of hydrologic connectivity and jurisdiction.

4.1 Wetlands

Seventy-two wetlands totaling 6.32 acres, ranging in size from less than 0.01 to 0.85 acre, were delineated within the ESC. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. Of the 72 wetlands, 66 wetlands were identified as PEM wetlands, four were PSS wetlands, and two were PEM/PSS complexes. Summary information for each delineated wetland within the ESC is provided in Table 4-1 (in Table Appendix). Completed USACE wetland and upland forms are provided in Appendix A. Representative photographs (four cardinal directions and soil) were taken of each wetland during the field survey and are provided with the forms in Appendix A.

4.1.1 Wetland ORAM Results

A total of 49 Category 1 wetlands, 14 Category 2 wetlands, and nine Modified Category 2 wetlands were identified within the ESC. No Category 3 wetlands were identified within the ESC. Table 4-4 provides summary information regarding wetlands identified within the ESC, and the ORAM forms are included in Appendix B.

Of the 49 Category 1 wetlands, 46 were classified as PEM wetlands, two were classified as PSS wetlands, and one was classified as a PEM/PSS complex. These wetlands were classified as Category 1 wetlands based on ORAM scores ranging from 6 to 29.5. Generally, these wetlands scored low due to a variety of factors such as small size, intensity of surrounding land use, narrow buffer areas, disturbance to soils and hydrology, the lack of secondary growth vegetation, and the presence of invasive species.

Fourteen Category 2 wetlands and nine Modified Category 2 wetlands were identified within the ESC. Of the 14 Category 2 wetlands, 12 were classified as PEM wetlands, one was classified as a PSS wetland, and one was classified as a PEM/PSS wetland complex. Of the nine Modified Category 2 wetlands, eight were classified as PEM wetlands and one was classified as a PSS wetland. Category 2 wetlands were based on ORAM scores ranging from 30 to 44. Generally, the Category 2 wetlands exhibited medium upland buffers, very low to moderately high intensive surrounding land use (e.g. second growth forest, residential, fenced pasture), sparse to moderate percentage of invasive species, and had habitat and hydrology generally recovered or recovering from previous manipulation due to clear-cutting, shrub/sapling removal, and other disturbances, or with no disturbance at all.

No Category 3 wetlands were identified within the ESC.

TABLE 4-4: Wetland Summary Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland Type	ORAM Category				Number of Wetlands	Acreage within ESC
	Category 1	Category 2	Modified 2	Category 3		
PEM	46	12	8	0	66	5.20
PSS	2	1	1	0	4	0.21
PEM/PSS	1	1	0	0	2	0.91
Totals	**49**	**14**	**9**	**0**	**72**	**6.32**

4.2 Streams

A total of 219 streams, totaling 51,228 linear feet, were identified within the ESC. Of the 219 streams, 108 streams were identified as ephemeral streams, 86 were intermittent streams, and 25 were perennial streams. A total of 185 streams were assessed using the HHEI methodology (drainage area less than 1 mi^2), nine streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2), and 25 streams have been identified with an existing designated use as outlined in the Ohio Administrative Code (OAC), OAC-3745-1-07. Table 4-2 (in Table Appendix) provides detailed information on the delineated streams.

4.2.1 QHEI Results

Nine streams, totaling 2,375 linear feet within the ESC, were evaluated using the QHEI methodology. One stream was classified as Poor Warmwater, four streams were classified as Fair Warmwater, and four were classified as Good Warmwater. Table 4-5 provides a summary of the QHEI results for streams identified within the ESC, and completed QHEI forms and representative photographs are provided in Appendix C.

TABLE 4-5: QHEI Stream Summary Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Flow Regime	QHEI Narrative Category					Number of Streams	Length (feet) within ESC
	Very Poor Warmwater	Poor Warmwater	Fair Warmwater	Good Warmwater	Excellent Warmwater		
Intermittent	0	0	1	2	0	3	651
Perennial	0	1	3	2	0	6	1,724
Totals	**0**	**1**	**4**	**4**	**0**	**9**	**2,375**

4.2.2 HHEI Results

A total of 185 headwater streams, totaling 42,080 linear feet within the ESC, were evaluated using the HHEI methodology. Table 4-6 provides a summary of the HHEI results for streams identified within the ESC, and completed HHEI forms and representative photographs are provided in Appendix D. Note that one stream, Stream HM-143, was not assessed due to concerns of safely accessing the site (e.g., steep ravine/drop-off).

TABLE 4-6: HHEI Stream Summary Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Flow Regime	HHEI Category[1]							Number of Streams	Length (feet) within ESC[2]
	Modified Ephemeral	Ephemeral	Modified Small Drainage Warmwater	Small Drainage Warmwater	Spring Water	Conduct Biological Assessment	*Not Assessed*		
Ephemeral	46	24	16	21	0	1	0	108	21,520
Intermittent	10	8	25	25	2	1	1	72	19,125
Perennial	0	0	4	1	0	0	0	5	1,435
Totals	**56**	**32**	**45**	**47**	**2**	**2**	**1**	**185**	**42,080**

[1]See Table 18 in *Field Methods for Evaluating Primary Headwater Streams in Ohio* (OEPA 2018).

[2]Numbers in this table have been rounded for presentation purposes. Thus, the totals may not reflect the exact sum of the addends in all cases.

4.2.3 Ohio Administrative Code Chapter 3745-1 Designated Use

The OEPA has established water use designation for streams throughout Ohio as outlined in the Ohio Administrative Code (OAC) Chapter 3745-1-07. There were 25 delineated stream segments that had a designated use as regulated under OAC Chapter 3745-1. These waterbodies were not assessed as Jacobs defaults to the assigned OAC designations. Table 4-7 provides a summary of waterbodies that cross the proposed alignment that have an assigned OAC designation and representative photographs are provided in Appendix E.

TABLE 4-7: OAC Chapter 3745-1 Stream Designations

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream Name	OAC Designation
Scioto River Drainage Basin	
Bear Creek	WWH
Bettys Creek	WWH
Bull Run	WWH
Big Run	WWH
Camp Creek	WWH
Candy Run	WWH
Drake Run	WWH
Devers Run	WWH
Left Fork Camp Creek	CWH
Rock Run	WWH
Rocky Fork	EWH
Scioto Brush Creek	WWH
Scioto River	WWH
Slate Run	WWH
South Fork Rocky Fork	EWH
Straight Fork	WWH
Southeast Ohio Tributaries Drainage Basin	
Bonser Run	WWH
Long Run	WWH
Munn Run	WWH
Southwest Ohio Tributaries Drainage Basin	
Baker Fork	EWH
Elk Run	WWH
Elm Run	WWH
Middle Fork Ohio Brush Creek	WWH
Straight Creek	WWH

Source: OEPA, 2017
WWH = warmwater habitat
CWH = cold water habitat
EWH = exceptional water habitat

4.3 Ponds/Open Water

Fourteen ponds totaling 2.07 acres were identified within the ESC. Table 4-3 (in Table Appendix) provides detailed information on the delineated ponds. Jacobs' Pond/Open Water forms with representative photographs are provided in Appendix F.

5 Protected Species

Jacobs reviewed the USFWS Ohio Ecological Services Office website (USFWS, 2017b) for information concerning which federally listed species were known to occur, or to potentially occur, in Highland, Adams, Pike, and Scioto Counties, Ohio. In addition, Jacobs was provided with Ohio Natural Heritage Database data from the Ohio Department of Natural Resources (ODNR) Division of Wildlife (DOW), on known occurrences of federally listed and state-listed species within a one-mile radius of the Project area.

5.1 Federal and State Agency Coordination Summary

Table 5-1, in the Table Appendix, includes the federally-listed species identified by the USFWS (USFWS, 2017b) as occurring, or potentially occurring, in Highland, Adams, Pike, and Scioto Counties, Ohio along with other habitat observations and information on recorded locations, if applicable. Table 5-1 also outlines state-listed species identified by the ODNR Division of Wildlife (DOW) (ODNR, 2020b) as being located within a one-mile radius of the Project area.

5.2 Protected Species Summary

Coordination with ODNR-DOW was initiated to obtain Environmental Review and Ohio Natural Heritage Database records within a 1-mile buffer area around the Project (ODNR-DOW, 2020a). Current information on the species provided through USFWS (USFWS, 2020) and the ODNR-DOW Ohio Natural Heritage Database is provided in Table 5-1 (Table Appendix).

A consultation request was submitted to the USFWS on September 9, 2019 and their response was received on December 18, 2019. USFWS stated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the project area. The USFWS also confirmed that the project area lies within the range of two federally-listed bat species (Indiana bat and northern long-eared bat), one mussel species (rayed bean), and two vascular plants (Virginia spiraea and running buffalo clover) (Table 5-1).

Portions of southern Scioto County are in Indiana bat hibernaculum buffers and roost tree buffers. The northern section of the line in Highland County is within many capture buffers of male and female Indiana bats and roost trees. Portions of the project are also within capture buffers of northern long-eared bats. The USFWS requested that AEP provide additional information regarding the extent of tree clearing within the proposed portions of the Project in Scioto and Highland Counties.

The endangered rayed bean is a freshwater mussel known to occur in Scioto Brush Creek and the Scioto River, both of which are spanned by the transmission line. The rayed bean prefers substrates of gravel and sand, and they are often associated with, and buried under the roots of, vegetation, including water willow (*Justicia americana)* and water milfoil (*Myriophyllum sp*.). The endangered clubshell (*Pleurobema clava*) and northern riffleshell (*Epioblasma torulosa rangiana*) mussels are also known to occur in the Scioto River. USFWS states that if the project directly or indirectly impacts any of the mussel streams above, they recommend a presence/absence mussel survey. Additionally, if any impact to native riparian vegetation is proposed they recommend further coordination with USFWS.

Known populations of *Virginia spiraea* occur in Ohio along long-established gravel bars in Scioto Brush Creek in Scioto County. The current alignment occurs in a township where this species is known to occur but does not cross the Scioto Brush Creek in this township. USFWS states that the current alignment does not impact this species; however, if the project proposes any re-alignments in this area then further coordination with USFWS will be required.

Lastly, the proposed Project also lies within the range of running buffalo clover. This species was recently proposed for delisting due to recovery. This species can potentially be found in partially shaded woodlots, mowed areas, and along streams, trails, and ROWs.

Consultation with USFWS is currently ongoing and recommendations for protection or minimization measures for federally listed species potentially present within the Project area will be provided.

A consultation request was submitted to the ODNR on September 9, 2019 and their e-mail response was received on January 22, 2020. The western 15,000 feet of the Project route, and the portion of the Project route between the Ohio River and the Scioto River, are within the vicinity of Indiana bat records. ODNR stated that if suitable Indiana bat habitat occurs within these project areas, it is recommended that trees be conserved. If trees must be cut or removed, the ODNR recommended cutting to occur between October 1 and March 31. The remainder of the Project route may not have records of Indiana bat, however, is still within the range of Indiana bat. If suitable habitat occur within the rest of the Project area and trees must be cut, ODNR recommended mist net surveys be conducted for the Indiana bat between June 1 and August 15, prior to any tree cutting.

According to ODNR, the Project must not have an impact on freshwater native mussels within the Project area and per the Ohio Mussel Survey Protocol (ODNR-DOW, 2016a), all Group 2, 3, and 4 streams require mussel surveys. No in-stream work is currently proposed during construction activities and will not directly impact streams crossed by the Project area. Therefore, mussel surveys will not likely be required. The ODNR-DOW recommends no in-water work in any perennial stream from April 15 through June 30 to reduce impacts to indigenous species and their habitat. Because no in-water work is proposed in any perennial stream within the Project area, the Project is not likely to impact threatened or endangered aquatic species.

The Project is within the range of timber rattlesnake, eastern spadefoot, and mud salamander. ODNR recommended that a DOW-approved herpetologist conduct a habitat suitability survey along the Project route to determine if suitable habitat exists for these species. Habitat surveys were completed in January 2021 and potentially suitable habitat was identified for the timber rattlesnake and mud salamander. No potentially suitable habitat was identified for the eastern spadefoot. Results have been submitted to ODNR and an avoidance/minimization plan will be developed and implemented.

Two bird species, including the lark sparrow and loggerhead shrike, are within the range of the Project. Habitat surveys were completed in January 2021 with suitable habitat identified for both species. If lark sparrow habitat will be impacted, ODNR recommends that construction be avoided in their nesting habitat during the period of May 1 to June 30. If loggerhead shrike habitat is present, construction should be avoided in their nesting habitat during April 1 to August 1. If suitable habitat cannot be avoided during nesting season, then presence/absence surveys will be conducted.

6 Conclusion

Jacobs conducted environmental surveys of the Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project from September through October 2019 and conducted subsequent surveys January 2020 and December 2020. A total of 72 wetlands, 219 streams, and 14 ponds were delineated within the ESC. The 72 wetlands, totaling 6.32 acres within the ESC, included 66 PEM wetlands, four PSS wetlands, and two PEM/PSS wetland complexes. Of the 72 wetlands, 49 were identified as Category 1 wetlands, 14 were identified as Category 2 wetlands, and nine were identified as Modified Category 2 wetlands. None were identified as Category 3 wetlands.

The 219 streams, totaling 51,228 linear feet, identified within the ESC include 108 ephemeral streams, 86 intermittent streams, and 25 perennial streams. A total of 185 streams were assessed using the HHEI methodology (drainage area less than 1 mi^2) and nine streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2). There were 25 streams that had a designated use as regulated under OAC 3745-1. These waterbodies were not assessed as Jacobs defaults to the assigned OAC designations. While the jurisdictional status of these identified features is provided with tables of this report, the USACE and OEPA will provide the final determination of hydrologic connectivity and jurisdiction. Coordination with the USACE and OEPA is recommended prior to the submittal of any permit or construction activities, dependent on the planned impacts to wetlands and waterbodies.

The results of the environmental resource survey described in this report and conducted by Jacobs are limited to what was identified within the ESC, as depicted in Figure 3-1 through Figure 3-110. The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this report may likely not constitute the actual impacts of the Project at the time of construction. If permits are determined to be necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

The wetland and waterbodies delineation field survey results presented within this report apply to the site conditions at the time of our assessment. Changes within the environmental survey corridor that may occur with time due to natural processes or human impacts at the Project site or on adjacent properties, could invalidate the findings of this report, especially if Jacobs is unaware and has not had the opportunity to revisit the Project survey area. Additionally, changes in applicable standards and regulations may also occur as a result of legislation or the expansion of knowledge over time. Therefore, the findings of this wetland and waterbodies delineation report may be invalidated, wholly or in part, by changes that are beyond the control of Jacobs.

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Table Appendix

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
Adams County			
BkD	Berks silt loam, 15 to 25 percent slopes	Non-Hydric	5.36
BrC2	Bratton-Opequon complex, 8 to 15 percent slopes, eroded	Non-Hydric	17.24
CrB	Crider silt loam, 1 to 6 percent slopes	Non-Hydric	0.07
Ge	Gessie loam, frequently flooded	Non-Hydric	0.74
LbC	Latham silt loam, 8 to 15 percent slopes	Non-Hydric	4.86
LbD2	Latham silt loam, 15 to 25 percent slopes, eroded	Non-Hydric	2.81
No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Predominantly Non-Hydric	4.67
OmB	Omulga silt loam, 1 to 6 percent slopes	Non-Hydric	2.42
OpD2	Opequon silty clay loam, 15 to 25 percent slopes, eroded	Non-Hydric	9.30
OwB	Otwell silt loam, 1 to 6 percent slopes	Non-Hydric	0.67
ScF	Shelocta-Brownsville association, very steep	Non-Hydric	0.17
ShE	Shelocta-Berks association, steep	Non-Hydric	10.73
ShF	Shelocta-Berks association, very steep	Non-Hydric	24.38
SkF	Shelocta-Brownsville association, very steep	Non-Hydric	2.30
SmD	Shelocta-Muse association, hilly	Non-Hydric	8.62
SoE	Shelocta-Muse-Colyer association, steep	Non-Hydric	43.49
Sp	Skidmore gravelly loam, occasionally flooded	Predominantly Non-Hydric	2.69
TkA	Tilsit silt loam, 0 to 3 percent slopes	Non-Hydric	15.17
TrC	Trappist silt loam, 8 to 15 percent slopes	Non-Hydric	1.69
TsF	Trappist-Shelocta association, steep	Non-Hydric	1.99
WgC	Wernock silt loam, 8 to 15 percent slopes	Non-Hydric	2.79
Highland County			
Ag	Algiers silt loam	Predominantly Non-Hydric	5.90
BeC2	Beasley silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	1.60
BeD2	Beasley silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.79
BgF	Berks-Muskingum channery silt loams, 18 to 35 percent slopes	Non-Hydric	6.60
BhD	Berks-Muskingum-Neotoma channery silt loams, 6 to 18 percent slopes	Non-Hydric	0.63
BhF	Berks-Muskingum-Neotoma channery silt loams, 18 to 35 percent slopes	Non-Hydric	0.74
BhG	Berks-Muskingum-Neotoma channery silt loams, 35 to 50 percent slopes	Non-Hydric	0.70
BmC2	Boston-Bratton complex, 6 to 12 percent slopes, moderately eroded	Non-Hydric	36.46
BmC3	Boston-Bratton complex, 6 to 12 percent slopes, severely eroded	Non-Hydric	2.12
BmD2	Boston-Bratton complex, 12 to 18 percent slopes, moderately eroded	Non-Hydric	19.88
BmE2	Boston-Bratton complex, 18 to 25 percent slopes, moderately eroded	Non-Hydric	0.69
BnB	Boston-Grayford silt loams, 2 to 6 percent slopes	Non-Hydric	2.36
BnB2	Boston-Grayford silt loams, 2 to 6 percent slopes, moderately eroded	Non-Hydric	4.12
BpB	Bratton silt loam, 2 to 6 percent slopes	Non-Hydric	6.45
BpB2	Bratton silt loam, 2 to 6 percent slopes, moderately eroded	Non-Hydric	14.57
BpC2	Bratton silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	21.05
BpD2	Bratton silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.74
ChB	Cincinnati silt loam, 2 to 6 percent slopes	Non-Hydric	6.50
ChC2	Cincinnati silt loam, 6 to 12 percent slopes, eroded	Non-Hydric	0.08
CoF	Colyer-Trappist complex, 18 to 35 percent slopes	Non-Hydric	1.63

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
CoG	Colyer-Trappist complex, 35 to 50 percent slopes	Non-Hydric	1.40
DuA	Dubois silt loam, 0 to 2 percent slopes	Predominantly Non-Hydric	2.52
Ee	Eel silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	3.95
GbG	Gasconade flaggy silty clay loam, 35 to 50 percent slopes	Non-Hydric	4.09
Gn	Genesee silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	11.89
HbB	Haubstadt silt loam, 2 to 6 percent slopes	Non-Hydric	12.37
HbC2	Haubstadt silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	5.58
HbD2	Haubstadt silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.86
HkC2	Hickory silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	1.26
HkD2	Hickory silt loam, Illinoian Till Plain, 12 to 18 percent slopes, eroded	Non-Hydric	7.78
HkE2	Hickory silt loam, 18 to 25 percent slopes, moderately eroded	Non-Hydric	5.98
HkF2	Hickory silt loam, 25 to 35 percent slopes, moderately eroded	Non-Hydric	0.64
HyD3	Hickory clay loam, 12 to 18 percent slopes, severely eroded	Non-Hydric	6.39
HyE3	Hickory clay loam, 18 to 25 percent slopes, severely eroded	Non-Hydric	0.66
JeD	Jessup silt loam, 12 to 18 percent slopes	Non-Hydric	2.12
JoR1A1	Jonesboro-Rossmoyne silt loams, 0 to 2 percent slopes	Predominantly Non-Hydric	0.48
JoR1B1	Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes	Non-Hydric	34.04
JoR1B2	Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes, eroded	Non-Hydric	6.90
LhB	Lawshe silty clay loam, 2 to 6 percent slopes	Non-Hydric	3.07
LhC2	Lawshe silty clay loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	1.09
LhD2	Lawshe silty clay loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.80
LlD3	Lawshe silty clay, 12 to 18 percent slopes, severely eroded	Non-Hydric	1.38
LoC2	Loudon silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	4.54
LoD2	Loudon silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.04
NdC	Negley loam, 6 to 12 percent slopes	Non-Hydric	2.19
NdD	Negley loam, 12 to 18 percent slopes	Non-Hydric	1.36
NdE	Negley loam, 18 to 25 percent slopes	Non-Hydric	4.07
NfD3	Negley clay loam, 12 to 18 percent slopes, severely eroded	Non-Hydric	1.95
NnB	Nicholson silt loam, 2 to 6 percent slopes	Non-Hydric	4.76
No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Predominantly Non-Hydric	1.00
OpD2	Opequon silt loam, 6 to 18 percent slopes, moderately eroded	Non-Hydric	11.82
OpE2	Opequon silt loam, 18 to 25 percent slopes, moderately eroded	Non-Hydric	11.42
OsF2	Opequon stony silt loam, 18 to 35 percent slopes, moderately eroded	Non-Hydric	9.33
OsG	Opequon stony silt loam, 35 to 50 percent slopes	Non-Hydric	7.77
OtD3	Opequon clay, 6 to 18 percent slopes, severely eroded	Non-Hydric	11.06
OwC2	Otwell silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	2.72
OwD2	Otwell silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.47
OwE2	Otwell silt loam, 18 to 25 percent slopes, moderately eroded	Non-Hydric	1.52
OwF	Otwell silt loam, 25 to 35 percent slopes	Non-Hydric	1.54
Rn	Ross silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	0.91
RpC2	Rossmoyne silt loam, 6 to 12 percent slopes, eroded	Predominantly Non-Hydric	25.97
RpD2	Rossmoyne silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.31
SaB	Sardinia silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	0.16

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
SeF	Shelocta-Berks association, very steep	Non-Hydric	1.39
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	Predominantly Non-Hydric	3.38
Sn	Sloan silt loam	Predominantly Hydric	4.13
TrE	Trappist silt loam, 18 to 25 percent slopes	Non-Hydric	1.64
TsC2	Trappist-Muse silt loams, 6 to 12 percent slopes, moderately eroded	Non-Hydric	0.43
TsD2	Trappist-Muse silt loams, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.73
TsF	Trappist-Shelocta association, steep	Non-Hydric	0.39
TwE	Trappist-Shelocta association, steep	Non-Hydric	0.90
WlD	Wellston silt loam, 12 to 18 percent slopes	Non-Hydric	1.87
WsS1B1	Westboro-Schaffer silt loams, 2 to 4 percent slopes	Predominantly Non-Hydric	0.08
Pike County			
Cf	Clifty silt loam, occasionally flooded	Non-Hydric	1.88
CoB	Coolville silt loam, 1 to 8 percent slopes	Non-Hydric	13.76
CoC	Coolville silt loam, 8 to 15 percent slopes	Non-Hydric	1.95
CpC	Coolville-Blairton association, rolling	Non-Hydric	5.43
CtC	Coolville-Rarden silt loams, 8 to 15 percent slopes	Non-Hydric	3.88
GpC	Gilpin silt loam, 8 to 15 percent slopes	Non-Hydric	7.69
GpD	Gilpin silt loam, 15 to 25 percent slopes	Non-Hydric	11.87
LhW1D1	Latham-Wharton silt loams, 15 to 25 percent slopes	Non-Hydric	42.69
RdC	Rarden silt loam, 8 to 15 percent slopes	Non-Hydric	3.97
SnF	Shelocta-Brownsville association, steep	Non-Hydric	4.29
SpF	Shelocta-Latham association, steep	Non-Hydric	30.90
TkA	Tilsit silt loam, 0 to 3 percent slopes	Non-Hydric	2.56
TsF	Trappist-Shelocta association, steep	Non-Hydric	4.75
WeB	Wernock Variant silt loam, 3 to 8 percent slopes	Non-Hydric	13.73
Scioto County			
AfD	Alford silt loam, 10 to 25 percent slopes	Non-Hydric	10.01
BeC	Berks channery silt loam, 8 to 15 percent slopes	Non-Hydric	29.92
BrF	Brownsville-Rock outcrop association, very steep	Non-Hydric	3.83
CoB	Coolville silt loam, 1 to 8 percent slopes	Non-Hydric	5.08
CpC	Coolville-Rarden silt loams, 8 to 15 percent slopes	Non-Hydric	19.83
FcA	Fitchville silt loam, 0 to 3 percent slopes	Predominantly Non-Hydric	5.11
Ge	Genesee silt loam, occasionally flooded	Non-Hydric	5.48
Ha	Haymond silt loam, occasionally flooded	Predominantly Non-Hydric	2.62
La	Landes fine sandy loam, occasionally flooded	Non-Hydric	0.83
LaGZD1	Latham-Gilpin association, hilly	Non-Hydric	28.37
Lah1C1	Latham silt loam, 8 to 15 percent slopes	Non-Hydric	1.80
Lah1D1	Latham silt loam, 15 to 25 percent slopes	Non-Hydric	17.30
LhW1D1	Latham-Wharton silt loams, 15 to 25 percent slopes	Non-Hydric	11.40
MoC2	Monongahela silt loam, 8 to 15 percent slopes, eroded	Non-Hydric	4.96
No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Predominantly Non-Hydric	7.04
OcB	Ockley loam, 1 to 8 percent slopes	Non-Hydric	7.92
Omu1B1	Omulga silt loam, 2 to 6 percent slopes	Non-Hydric	9.66

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
Omu1C1	Omulga silt loam, 6 to 12 percent slopes	Non-Hydric	6.59
Pe	Peoga silt loam, rarely flooded	Predominantly Hydric	5.64
Ro	Rossburg silty clay loam, occasionally flooded	Non-Hydric	10.01
SbB	Shelocta silt loam, 3 to 8 percent slopes	Non-Hydric	12.50
SbC	Shelocta silt loam, 8 to 15 percent slopes	Non-Hydric	1.12
SbD	Shelocta silt loam, 15 to 25 percent slopes	Non-Hydric	1.30
ScE	Shelocta-Brownsville association, steep	Non-Hydric	48.98
ScF	Shelocta-Brownsville association, very steep	Non-Hydric	208.06
Sk	Skidmore silt loam, occasionally flooded	Non-Hydric	7.11
SWLZE1	Shelocta-Wharton-Latham association, steep	Non-Hydric	20.41
TcB	Tilsit-Coolville association, undulating	Non-Hydric	8.89
W	Water	Non-Hydric	1.44
WfD	Wharton silt loam, 15 to 25 percent slopes	Non-Hydric	4.13
WpB	Wheeling-Urban land complex, 1 to 8 percent slopes	Non-Hydric	1.51
		Total:	**1,193**

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-1, 3-2	Stream HM-001	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-2, 3-3	Stream HM-002	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4	Stream HM-003	
PSS1A	Palustrine scrub-shrub, broad-leaved deciduous, temporary flooded	3-4	Upland HM-087	Upland riparian gently sloping away from Stream HM-004
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-4	Stream HM-004	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4	Stream HM-005	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4	Stream HM-007a	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-4	Stream HM-007a	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4, 3-5	Stream HM-007b	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-6	Pond HM-001	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-6	Stream HM-011	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-7	Stream HM-014	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-8	Stream HM-018	Pond located outside of ESC
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-8	Stream HM-019	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-8, 3-9	Stream HM-020	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-9	Stream HM-021	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-10	Pond HM-002	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-10	Stream HM-025	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-11	Stream HM-028	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-11, 3-12	Stream HM-029	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-12	Stream HM-030	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-12	Stream HM-031	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-12, 3-13	Stream HM-032	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-13	Stream HM-034	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-14	Stream HM-035	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-17	Stream HM-041	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-18	Pond HM-003	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-18	Stream HM-043	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-20	none	NWI is associated with a stream just outside of the ESC
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-21	Stream HM-047	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-23, 3-24	Stream HM-052	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-24	Stream HM-054	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-25	Stream HM-056	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-26	Stream HM-058	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-28	Upland HM-090	Upland pasture, no sign of wetland
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-29	Stream HM-064	

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-30	Stream HM-070	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-30	Stream HM-072	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-31, 3-32	Stream HM-073	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-33	Stream HM-074	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-33, 3-34	Upland HM-091	Upland steep hillslope, no sign of wetland
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-34	Stream HM-075	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-34, 3-35	Upland HM-092	Upland hillside, no sign of wetland
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-34, 3-35	Stream HM-076	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-35	Wetland HM-032	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-35	Wetland HM-033	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-37, 3-38	Stream HM-083	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-38, 3-39	Stream HM-087	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-39	Stream HM-088	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-40	Wetland HM-037	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-41, 3-42	Stream HM-092	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-42	Stream HM-093	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-42, 3-43	Stream HM-096	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-43	Wetland HM-042	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-44	Stream HM-100	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-44	Stream HM-103	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-45	Stream HM-106	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-46	Stream HM-110	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-46, 3-47	Stream HM-113	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-47	Stream HM-115	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-47, 3-48	Wetland HM-046	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-49	Pond HM-007	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-49	Stream HM-117	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-50	Stream HM-118	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-50, 3-51	Stream HM-119	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-51, 3-52	Stream HM-120	
PEM1F	Palustrine emergent, persistent, semipermanently flooded	3-52	Pond HM-008	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-53	Stream HM-122	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-54, 3-55	Stream HM-126	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-56	Stream HM-127	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-56	Stream HM-128	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-57	Stream HM-129	

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-59	Pond HM-009	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-59, 3-60	Stream HM-131	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-61	Stream HM-132	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-63	Stream HM-134	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-64	Stream HM-230	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-64, 3-65	Stream HM-232	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-65	Stream HM-234	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-67	Stream HM-135	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-69	Stream HM-140	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-69, 3-70	Stream HM-142	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-72	Stream HM-144	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-73	Stream HM-148	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-73	Stream HM-152	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-74	Stream HM-154	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-75, 3-76	Stream HM-159	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-76, 3-77	Stream HM-163	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-78	Stream HM-166	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-79	Stream HM-167	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-81	Pond HM-011	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-81	Wetland HM-061	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-82	Stream HM-170	
PFO1A	Palustrine forested, broad-leaved deciduous, temporary flooded	3-84	Stream HM-171	
R4SBCx	Riverine intermittent, streambed, seasonally flooded, excavated	3-84	Stream HM-171	
R2UBHh	Riverine lower perennial, unconsolidated bottom, permanently flooded, diked/impounded	3-85	Stream HM-174	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-85	Stream HM-174	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-86, 3-87	Stream HM-175	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-89	Stream HM-178	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-89, 3-90	Stream HM-179	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-94, 3-95	Pond HM-013	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-95	Stream HM-187	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-96, 3-97	Stream HM-190	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-100, 3-101	Stream HM-200	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-102	Stream HM-205	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-103	Stream HM-206	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-104	Stream HM-207	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-109	Stream HM-213	

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
R2UBHx	Riverine lower perennial, unconsolidated bottom, permanently flooded, excavated	3-109, 3-110	Stream HM-216	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-109, 3-110	Stream HM-216	

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	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)
Wetland HM-001	39.17224	-83.67508	Jurisdictional	PEM	0.05	33	2	344 / 2	None	None	TBD	TBD	0
Wetland HM-002	39.16555	-83.65917	Non-Jurisdictional	PEM	0.01	29	1	336 / 10	None	None	TBD	TBD	0
Wetland HM-003	39.16044	-83.64723	Jurisdictional	PSS	0.01	34.5	2	331 / 15	None	None	TBD	TBD	0
Wetland HM-004	39.15957	-83.64548	Jurisdictional	PEM	0.02	36.5	Modified 2	330 / 16	None	None	TBD	TBD	0
Wetland HM-005	39.15648	-83.63841	Jurisdictional	PEM	0.03	37	Modified 2	325 / 20	None	None	TBD	TBD	0
Wetland HM-006	39.15135	-83.62632	Jurisdictional	PEM	0.04	21	1	320 / 25	None	None	TBD	TBD	0
Wetland HM-007	39.15066	-83.62468	Jurisdictional	PEM	0.05	15	1	320 / 25	None	None	TBD	TBD	0
Wetland HM-008	39.15021	-83.62345	Jurisdictional	PEM	0.29	31	2	319 / 26	None	None	TBD	TBD	0
Wetland HM-009	39.14776	-83.61753	Jurisdictional	PEM	0.11	34	2	317 / 28	None	None	TBD	TBD	0
Wetland HM-010	39.14729	-83.61650	Jurisdictional	PEM	0.19	41	Modified 2	316 / 29	None	None	TBD	TBD	0
Wetland HM-011	39.14676	-83.61499	Jurisdictional	PEM	0.06	38	Modified 2	315 / 30	None	None	TBD	TBD	0
Wetland HM-012	39.12822	-83.57010	Jurisdictional	PEM	0.08	17	1	295 / 48	None	None	TBD	TBD	0
Wetland HM-013	39.12141	-83.55365	Non-Jurisdictional	PEM	0.10	13	1	281 / 55	None	None	TBD	TBD	0
Wetland HM-014	39.11523	-83.54212	Jurisdictional	PEM	0.17	15	1	282 / 61	None	None	TBD	TBD	0
Wetland HM-015	39.11525	-83.54141	Jurisdictional	PEM	0.03	16	1	274 / 62	None	None	TBD	TBD	0
Wetland HM-016	39.11152	-83.53282	Jurisdictional	PEM	0.03	18	1	277 / 66	None	None	TBD	TBD	0
Wetland HM-017	39.10963	-83.52909	Jurisdictional	PEM	0.04	14.5	1	269 / 68	None	None	TBD	TBD	0

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	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)
Wetland HM-018	39.10600	-83.52147	Jurisdictional	PEM	0.07	22	1	266 / 71	None	None	TBD	TBD	0
Wetland HM-019	39.10202	-83.51306	Jurisdictional	PEM	0.01	21	1	267 / 76	None	None	TBD	TBD	0
Wetland HM-020	39.10059	-83.50993	Jurisdictional	PEM	<0.01	18	1	266 / 77	None	None	TBD	TBD	0
Wetland HM-021	39.09420	-83.49624	Jurisdictional	PSS	0.14	24.5	1	254 / 84	None	None	TBD	TBD	0
Wetland HM-022	39.08469	-83.46692	Jurisdictional	PEM	0.02	34.5	2	241 / 97	None	None	TBD	TBD	0
Wetland HM-023	39.08300	-83.46182	Jurisdictional	PEM	0.19	10.5	1	243A / 99	None	None	TBD	TBD	0
Wetland HM-024	39.07260	-83.43225	Jurisdictional	PEM	0.11	18.5	1	231 / 112	None	None	TBD	TBD	0
Wetland HM-025	39.06910	-83.42036	Jurisdictional	PEM	0.05	6	1	225 / 117	None	None	TBD	TBD	0
Wetland HM-026	39.06799	-83.41774	Jurisdictional	PEM	0.10	17	1	224 / 118	None	None	TBD	TBD	0
Wetland HM-027	39.06420	-83.40628	Jurisdictional	PEM	0.03	29.5	1	215 / 123	None	None	TBD	TBD	0
Wetland HM-028	39.06188	-83.39957	Jurisdictional	PEM	0.11	35	Modified 2	213 / 125	None	None	TBD	TBD	0
Wetland HM-029	39.06014	-83.39377	Jurisdictional	PEM	0.04	27	1	215 / 127	None	None	TBD	TBD	0
Wetland HM-030	39.04798	-83.36685	Non-Jurisdictional	PSS	0.03	15.5	1	203 / 136	None	None	TBD	TBD	0
Wetland HM-031	39.04675	-83.36477	Jurisdictional	PEM	0.08	23.5	1	205 / 137	None	None	TBD	TBD	0
Wetland HM-032	39.04520	-83.36115	Jurisdictional	PEM	0.69	29.5	1	203 / 139	None	None	TBD	TBD	0
Wetland HM-033	39.04352	-83.35743	Jurisdictional	PEM	0.22	18	1	199 / 140	None	None	TBD	TBD	0
Wetland HM-034	39.04135	-83.35277	Jurisdictional	PEM	0.15	40	Modified 2	200 / 142	None	None	TBD	TBD	0

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	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)
Wetland HM-035	39.03788	-83.34537	Jurisdictional	PEM	<0.01	31	2	197 / 144	None	None	TBD	TBD	0
Wetland HM-036	39.03045	-83.32728	Non-Jurisdictional	PEM	0.01	25	1	190 / 151	None	None	TBD	TBD	0
Wetland HM-037	39.02620	-83.31634	Non-Jurisdictional	PSS	0.03	35.5	Modified 2	185 / 155	None	None	TBD	TBD	0
Wetland HM-038	39.02372	-83.30984	Non-Jurisdictional	PEM	0.01	26	1	181 / 158	None	None	TBD	TBD	0
Wetland HM-039*	39.02354	-83.30931	Non-Jurisdictional	PEM	0.05	32	2	181 / 159	None	None	TBD	TBD	0
Wetland HM-040*	39.02355	-83.30933		PSS	0.02			181 / 159	None	None	TBD	TBD	0
Wetland HM-041	39.01966	-83.29745	Jurisdictional	PEM	0.01	27	1	176 / 163	None	None	TBD	TBD	0
Wetland HM-042	39.01655	-83.28457	Jurisdictional	PEM	0.01	24	1	172 / 167	None	None	TBD	TBD	0
Wetland HM-043	39.01454	-83.27781	Jurisdictional	PEM	0.03	31	2	169 / 169	None	None	TBD	TBD	0
Wetland HM-044	39.01330	-83.27204	Jurisdictional	PEM	0.04	18.5	1	167 / 170	None	None	TBD	TBD	0
Wetland HM-045	39.01319	-83.27130	Jurisdictional	PEM	0.02	44	Modified 2	167 / 171	None	None	TBD	TBD	0
Wetland HM-046	39.00601	-83.23953	Non-Jurisdictional	PEM	0.20	33	2	157 / 181	None	None	TBD	TBD	0
Wetland HM-047	39.00056	-83.22334	Jurisdictional	PEM	0.02	25	1	151 / 188	None	None	TBD	TBD	0
Wetland HM-048	38.99766	-83.21803	Jurisdictional	PEM	0.19	34.5	2	149 / 190	None	None	TBD	TBD	0
Wetland HM-049	38.98852	-83.20120	Jurisdictional	PEM	0.14	20.5	1	141 / 196	None	None	TBD	TBD	0
Wetland HM-050	38.97864	-83.18322	Jurisdictional	PEM	0.09	27	1	135 / 203	None	None	TBD	TBD	0
Wetland HM-051	38.95896	-83.14585	Jurisdictional	PEM	0.02	13	1	118 / 219	None	None	TBD	TBD	0

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	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)
Wetland HM-052	38.92631	-83.09737	Jurisdictional	PEM	0.02	27	1	94 / 243	None	None	TBD	TBD	0
Wetland HM-053	38.92480	-83.09518	Jurisdictional	PEM	0.21	30	2	93 / 244	None	None	TBD	TBD	0
Wetland HM-054	38.92187	-83.09169	Jurisdictional	PEM	<0.01	21	1	91 / 246	None	None	TBD	TBD	0
Wetland HM-055	38.91677	-83.08398	Jurisdictional	PEM	0.01	20	1	88 / 249	None	None	TBD	TBD	0
Wetland HM-056	38.90211	-83.06508	Jurisdictional	PEM	0.02	16	1	79 / 258	None	None	TBD	TBD	0
Wetland HM-057	38.90017	-83.06333	Jurisdictional	PEM	<0.01	19	1	78 / 259	None	None	TBD	TBD	0
Wetland HM-058	38.89997	-83.06255	Non-Jurisdictional	PEM	<0.01	19	1	78 / 259	None	None	TBD	TBD	0
Wetland HM-059	38.88342	-83.04056	Non-Jurisdictional	PEM	0.02	24	1	71 / 265	None	None	TBD	TBD	0
Wetland HM-060	38.87603	-83.03188	Non-Jurisdictional	PEM	0.03	20	1	66 / 269	None	None	TBD	TBD	0
Wetland HM-061	38.86959	-83.01835	Jurisdictional	PEM	0.15	16	1	60 / 276	None	None	TBD	TBD	0
Wetland HM-062*	38.86478	-82.99228	Jurisdictional	PEM	0.41	29	1	54 / 285	None	None	TBD	TBD	0
Wetland HM-063*	38.86480	-82.99232		PSS	0.44			50 / 285	None	None	TBD	TBD	0
Wetland HM-064	38.85868	-82.98541	Jurisdictional	PEM	0.16	27	1	50 / 288	None	None	TBD	TBD	0
Wetland HM-065	38.85780	-82.98476	Jurisdictional	PEM	0.11	24	1	49 / 289	None	None	TBD	TBD	0
Wetland HM-066	38.85359	-82.98199	Jurisdictional	PEM	0.11	33	2	46 / 292	None	None	TBD	TBD	0
Wetland HM-067	38.83857	-82.97338	Non-Jurisdictional	PEM	0.03	32	2	38 / 297	None	None	TBD	TBD	0
Wetland HM-068	38.82262	-82.95930	Non-Jurisdictional	PEM	0.12	34	2	30 / 305	None	None	TBD	TBD	0

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	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)
Wetland HM-069	38.80107	-82.94324	Jurisdictional	PEM	0.06	36	Modified 2	21 / 314B	None	None	TBD	TBD	0
Wetland HM-070	38.75454	-82.92769	Jurisdictional	PEM	0.05	11	1	1 / 334	None	None	TBD	TBD	0
Wetland HM-076	38.94455	-83.12401	Jurisdictional	PEM	0.02	21.5	1	107 / 229	None	None	TBD	TBD	0
Wetland HM-077	38.94121	-83.11882	Jurisdictional	PEM	0.10	14	1	104 / 232	None	None	TBD	TBD	0
Wetland HM-078	38.93886	-83.11626	Jurisdictional	PEM	<0.01	22	1	104 / 233	None	None	TBD	TBD	0
Wetland HM-080	38.93116	-83.10473	Jurisdictional	PEM	0.02	27	1	97 / 240	None	None	TBD	TBD	0
Total: 72				**Total:**	**6.32**								

[1]Based on Jacobs' professional opinion; jurisdictional status should be verified by the USACE and/or OEPA.
*wetland complex

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-001	39.17232	-83.67518	Intermittent	UNT Rocky Fork	121	8	6	QHEI	48	Fair	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-002	39.16834	-83.66590	Intermittent	UNT Rocky Fork	110	12	2	HHEI	38	Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-003	39.16404	-83.65591	Intermittent	UNT Rocky Fork	158	10	4	HHEI	51	Modified Small Drainage Warmwater	Ineligible	Moderately Stable	TBD	None	0
Stream HM-004	39.16256	-83.65238	Perennial	UNT Rocky Fork	421	18	15	QHEI	57.25	Good	Ineligible	Moderately Unstable	TBD	None	0
Stream HM-005	39.16235	-83.65217	Perennial	UNT Rocky Fork	90	12	9	HHEI	52	Modified Small Drainage Warmwater	Ineligible	Moderately Unstable	TBD	None	0
Stream HM-006	39.16167	-83.65042	Perennial	Rocky Fork	103	10	6	Chapter 3745-1	N/A	EWH	Ineligible	Moderately Stable	TBD	None	0
Stream HM-007a	39.16180	-83.65038	Intermittent	UNT Rocky Fork	36	4	2	HHEI	40	Modified Small Drainage Warmwater	Ineligible	Stable	TBD	None	0
Stream HM-007b	39.16008	-83.64680	Intermittent	UNT Rocky Fork	476	4	2	HHEI	56	Modified Small Drainage Warmwater	Ineligible	Moderately Unstable	TBD	None	0
Stream HM-008	39.15956	-83.64572	Intermittent	UNT Rocky Fork	148	3	2	HHEI	23	Ephemeral	Ineligible	Moderately Unstable	TBD	None	0
Stream HM-009	39.15962	-83.64555	Ephemeral	UNT Rocky Fork	82	1	1	HHEI	17	Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-010	39.15650	-83.63836	Intermittent	UNT South Fork Rocky Fork	105	1	1	HHEI	21	Modified Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-011	39.15418	-83.63297	Perennial	South Fork Rocky Fork	113	20	10	Chapter 3745-1	N/A	EWH	Ineligible	Stable	TBD	None	0
Stream HM-012	39.15302	-83.63047	Intermittent	UNT South Fork Rocky Fork	50	4	2.5	HHEI	15	Modified Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-013	39.15309	-83.63039	Intermittent	UNT South Fork Rocky Fork	114	5	2	HHEI	18	Modified Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-014	39.15051	-83.62403	Intermittent	UNT South Fork Rocky Fork	74	4	2	HHEI	26	Ephemeral	Ineligible	Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-015	39.15015	-83.62339	Ephemeral	UNT South Fork Rocky Fork	217	4	2	HHEI	39	Modified Small Drainage Warmwater	Ineligible	Unstable	TBD	None	0
Stream HM-017	39.14849	-83.61916	Ephemeral	UNT South Fork Rocky Fork	58	5	1	HHEI	18	Modified Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-018	39.14657	-83.61488	Ephemeral	UNT South Fork Rocky Fork	220	2	1	HHEI	17	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-019	39.14531	-83.61173	Perennial	UNT South Fork Rocky Fork	140	12	6	QHEI	44	Fair	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-020	39.14439	-83.60948	Intermittent	UNT South Fork Rocky Fork	171	6	3	HHEI	28	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-021	39.14317	-83.60660	Perennial	UNT South Fork Rocky Fork	121	15	12	QHEI	45.5	Fair	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-022	39.14204	-83.60395	Intermittent	UNT South Fork Rocky Fork	205	3	2	HHEI	43	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-023	39.14193	-83.60364	Ephemeral	UNT South Fork Rocky Fork	130	2	1	HHEI	32	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-024	39.13829	-83.59484	Ephemeral	UNT South Fork Rocky Fork	121	5	4	HHEI	39	Modified Small Drainage Warmwater	Ineligible	Moderately Stable	TBD	None	0
Stream HM-025	39.13833	-83.59457	Intermittent	UNT South Fork Rocky Fork	467	8	3	HHEI	43	Modified Small Drainage Warmwater	Ineligible	Moderately Stable	TBD	None	0
Stream HM-026	39.13601	-83.58954	Ephemeral	UNT Ohio Brush Creek	97	2	1	HHEI	35	Modified Small Drainage Warmwater	Possibly Eligible	Unstable	TBD	None	0
Stream HM-027	39.13450	-83.58538	Ephemeral	UNT Ohio Brush Creek	258	2	2	HHEI	27	Modified Ephemeral	Possibly Eligible	Stable	TBD	None	0
Stream HM-028	39.13320	-83.58224	Intermittent	UNT Ohio Brush Creek	362	6	4	HHEI	43	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-029	39.13233	-83.58039	Perennial	UNT Ohio Brush Creek	598	6	4	HHEI	56	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-030	39.13189	-83.57918	Perennial	UNT Ohio Brush Creek	294	6	3	HHEI	42	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-031	39.12968	-83.57386	Intermittent	UNT Ohio Brush Creek	227	6	3	HHEI	61	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-032	39.12815	-83.57018	Intermittent	UNT Ohio Brush Creek	217	2	2	HHEI	27	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-033	39.12593	-83.56487	Ephemeral	UNT Ohio Brush Creek	181	3	2	HHEI	13	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-034	39.12537	-83.56350	Ephemeral	UNT Ohio Brush Creek	205	3.5	3	HHEI	22	Modified Ephemeral	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-035	39.12354	-83.55913	Intermittent	UNT Ohio Brush Creek	288	10	6	HHEI	57	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-036	39.11505	-83.54179	Ephemeral	UNT Elm Run	233	1	1	HHEI	17	Modified Ephemeral	Eligible	Unstable	TBD	None	0
Stream HM-037	39.11508	-83.54137	Ephemeral	UNT Elm Run	268	1	1	HHEI	27	Modified Ephemeral	Eligible	Unstable	TBD	None	0
Stream HM-038	39.11475	-83.54097	Ephemeral	UNT Elm Run	69	1	1	HHEI	12	Modified Ephemeral	Eligible	Unstable	TBD	None	0
Stream HM-039	39.11296	-83.53693	Ephemeral	UNT Elm Run	37	5	4	HHEI	23	Modified Ephemeral	Eligible	Unstable	TBD	None	0
Stream HM-040	39.11142	-83.53249	Ephemeral	UNT Elm Run	100	6	2	HHEI	12	Modified Ephemeral	Eligible	Unstable	TBD	None	0
Stream HM-041	39.11015	-83.53054	Perennial	Elm Run	382	15	12	Chapter 3745-1	N/A	WWH	Eligible	Moderately Stable	TBD	None	0
Stream HM-042	39.10877	-83.52744	Ephemeral	UNT Elm Run	369	4	3	HHEI	20	Modified Ephemeral	Eligible	Unstable	TBD	None	0
Stream HM-043	39.10537	-83.52013	Perennial	UNT Elm Run	244	5	3	HHEI	53	Modified Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-044	39.10221	-83.51328	Ephemeral	UNT Elm Run	447	3	2	HHEI	13	Modified Ephemeral	Eligible	Unstable	TBD	None	0
Stream HM-045	39.10161	-83.51254	Ephemeral	UNT Elm Run	70	2	1	HHEI	22	Modified Ephemeral	Eligible	Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-046	39.09796	-83.50472	Ephemeral	UNT Elk Run	90	3	2	HHEI	22	Modified Ephemeral	Eligible	Moderately Stable	TBD	None	0
Stream HM-047	39.09414	-83.49616	Perennial	Elk Run	223	25	20	Chapter 3745-1	N/A	WWH	Eligible	Moderately Unstable	TBD	None	0
Stream HM-048	39.08891	-83.48190	Ephemeral	UNT Cox Branch	244	2.5	2	HHEI	12	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-049	39.08794	-83.47837	Intermittent	UNT Cox Branch	208	4.5	3.5	HHEI	49	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-050	39.08652	-83.47282	Ephemeral	UNT Cox Branch	130	2.5	1.5	HHEI	18	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-051	39.08596	-83.47126	Intermittent	UNT Cox Branch	261	2.5	2	HHEI	43	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-052	39.08585	-83.47087	Intermittent	UNT Cox Branch	217	3	2.5	HHEI	28	Ephemeral	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-053	39.08567	-83.46929	Ephemeral	UNT Cox Branch	36	2	1.5	HHEI	13	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-054	39.08476	-83.46688	Intermittent	UNT Middle Fork Ohio Brush Creek	401	2	1.5	HHEI	36	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-055	39.08325	-83.46235	Intermittent	UNT Middle Fork Ohio Brush Creek	467	2	1.5	HHEI	26	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-056	39.08085	-83.45632	Perennial	Middle Fork Ohio Brush Creek	250	25	18	Chapter 3745-1	N/A	WWH	Possibly Eligible	Stable	TBD	None	0
Stream HM-057	39.08046	-83.45529	Intermittent	UNT Middle Fork Ohio Brush Creek	304	5	3	HHEI	35	Modified Small Drainage Warmwater	Possibly Eligible	Unstable	TBD	None	0
Stream HM-058	39.07810	-83.44892	Perennial	UNT Middle Fork Ohio Brush Creek	298	20	18	QHEI	55.5	Good	Possibly Eligible	Stable	TBD	None	0
Stream HM-059	39.07424	-83.43758	Ephemeral	UNT Middle Fork Ohio Brush Creek	42	2.5	1.5	HHEI	6	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-060	39.07291	-83.43207	Ephemeral	UNT Middle Fork Ohio Brush Creek	57	2	1	HHEI	6	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-061	39.07126	-83.42768	Ephemeral	UNT Middle Fork Ohio Brush Creek	167	3	2	HHEI	21	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-062	39.06933	-83.42113	Intermittent	UNT Baker Fork	128	1	1	HHEI	27	Modified Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-063	39.06793	-83.41766	Intermittent	UNT Baker Fork	427	1	1	HHEI	37	Modified Small Drainage Warmwater	Ineligible	Unstable	TBD	None	0
Stream HM-064	39.06704	-83.41478	Ephemeral	UNT Baker Fork	292	1	1	HHEI	12	Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-065	39.06680	-83.41417	Intermittent	UNT Baker Fork	307	15	12	QHEI	68	Good	Ineligible	Stable	TBD	None	0
Stream HM-066	39.06666	-83.41388	Intermittent	UNT Baker Fork	162	3	2.5	HHEI	44	Small Drainage Warmwater	Ineligible	Stable	TBD	None	0
Stream HM-067	39.06504	-83.40885	Ephemeral	UNT Baker Fork	238	10	2	HHEI	30	Modified Ephemeral	Ineligible	Moderately Stable	TBD	None	0
Stream HM-068	39.06447	-83.40655	Intermittent	UNT Baker Fork	338	2.5	1.5	HHEI	42	Small Drainage Warmwater	Ineligible	Moderately Stable	TBD	None	0
Stream HM-069	39.06444	-83.40625	Intermittent	UNT Baker Fork	85	2.5	1.5	HHEI	32	Conduct Biological Assessment	Ineligible	Moderately Stable	TBD	None	0
Stream HM-070	39.06408	-83.40626	Intermittent	UNT Baker Fork	417	4	3	HHEI	50	Small Drainage Warmwater	Ineligible	Moderately Stable	TBD	None	0
Stream HM-071	39.06385	-83.40501	Ephemeral	UNT Baker Fork	221	1.5	1.5	HHEI	34	Modified Small Drainage Warmwater	Ineligible	Stable	TBD	None	0
Stream HM-072	39.06235	-83.40033	Perennial	Baker Fork	361	30	22	Chapter 3745-1	N/A	EWH	Ineligible	Stable	TBD	None	0
Stream HM-073	39.05862	-83.39003	Perennial	Straight Creek	204	25	20	Chapter 3745-1	N/A	EWH	Ineligible	Moderately Stable	TBD	None	0
Stream HM-074	39.05090	-83.37339	Intermittent	UNT Straight Creek	219	10	3	HHEI	26	Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-075	39.04945	-83.37030	Ephemeral	UNT Straight Creek	245	1	0.5	HHEI	6	Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-076	39.04671	-83.36434	Intermittent	UNT Straight Creek	449	3	2.5	HHEI	27	Ephemeral	Ineligible	Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-077	39.04666	-83.36388	Ephemeral	UNT Straight Creek	67	1	1	HHEI	11	Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-078	39.03882	-83.34781	Ephemeral	UNT Crooked Creek	11	1	1	HHEI	22	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-079	39.03889	-83.34729	Intermittent	UNT Crooked Creek	210	3	2	HHEI	47	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-080	39.03867	-83.34675	Intermittent	UNT Crooked Creek	243	2	1.5	HHEI	15	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-081	39.03827	-83.34607	Ephemeral	UNT Crooked Creek	177	1	1	HHEI	24	Ephemeral	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-082	39.03788	-83.34552	Ephemeral	UNT Crooked Creek	66	1	1	HHEI	28	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-083	39.03406	-83.33628	Intermittent	UNT Bettys Creek	363	7	5	HHEI	66	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-084	39.03348	-83.33526	Ephemeral	UNT Bettys Creek	46	1	1	HHEI	12	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-086	39.03224	-83.33229	Ephemeral	UNT Bettys Creek	61	1	1	HHEI	11	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-087	39.03134	-83.32965	Perennial	Bettys Creek	225	7	5	Chapter 3745-1	N/A	WWH	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-088	39.02937	-83.32493	Intermittent	UNT Bettys Creek	853	4	3.5	HHEI	56	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-089	39.02874	-83.32309	Ephemeral	UNT Bettys Creek	238	2	1.5	HHEI	33	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-090	39.02225	-83.30412	Ephemeral	UNT Scioto Brush Creek	131	2.5	2	HHEI	32	Small Drainage Warmwater	Ineligible	Moderately Stable	TBD	None	0
Stream HM-091	39.02200	-83.30365	Ephemeral	UNT Scioto Brush Creek	174	1	1	HHEI	19	Ephemeral	Ineligible	Moderately Unstable	TBD	None	0
Stream HM-092	39.02100	-83.30100	Intermittent	Scioto Brush Creek	224	15	12	Chapter 3745-1	N/A	WWH	Ineligible	Stable	TBD	None	0
Stream HM-093	39.02024	-83.29871	Intermittent	UNT Scioto Brush Creek	222	8	6	HHEI	47	Small Drainage Warmwater	Ineligible	Stable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-094	39.01826	-83.29117	Ephemeral	UNT Scioto Brush Creek	120	3	2	HHEI	36	Small Drainage Warmwater	Ineligible	Stable	TBD	None	0
Stream HM-095	39.01803	-83.29120	Intermittent	UNT Scioto Brush Creek	223	7	2.5	HHEI	38	Modified Small Drainage Warmwater	Ineligible	Stable	TBD	None	0
Stream HM-096	39.01774	-83.29003	Intermittent	UNT Scioto Brush Creek	228	13	10	HHEI	77	Spring Water	Ineligible	Stable	TBD	None	0
Stream HM-097	39.01724	-83.28792	Intermittent	UNT Scioto Brush Creek	282	3.5	2	HHEI	36	Modified Small Drainage Warmwater	Ineligible	Moderately Stable	TBD	None	0
Stream HM-098	39.01672	-83.28556	Ephemeral	UNT Scioto Brush Creek	166	2	1.5	HHEI	11	Modified Ephemeral	Ineligible	Unstable	TBD	None	0
Stream HM-099	39.01563	-83.28157	Ephemeral	UNT Straight Fork	965	3	2	HHEI	37	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-100	39.01491	-83.27866	Intermittent	Straight Fork	204	8	5	Chapter 3745-1	N/A	WWH	Possibly Eligible	Stable	TBD	None	0
Stream HM-101	39.01457	-83.27788	Ephemeral	UNT Straight Fork	364	3	1.5	HHEI	22	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-102	39.01338	-83.27263	Ephemeral	UNT Straight Fork	378	1	1	HHEI	13	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-103	39.01324	-83.27201	Intermittent	UNT Straight Fork	233	4	3	HHEI	14	Modified Ephemeral	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-104	39.01307	-83.27124	Ephemeral	UNT Straight Fork	300	3	1	HHEI	22	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-105	39.01197	-83.26717	Ephemeral	UNT Straight Fork	123	3	1.5	HHEI	32	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-106	39.01122	-83.26332	Intermittent	UNT Straight Fork	210	10	6	HHEI	63	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-107	39.01135	-83.26315	Ephemeral	UNT Straight Fork	53	1	1	HHEI	20	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-108	39.01107	-83.26320	Ephemeral	UNT Straight Fork	119	1	1.5	HHEI	14	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-109	39.00979	-83.25703	Intermittent	Bull Run	200	22	15	Chapter 3745-1	N/A	WWH	Possibly Eligible	Stable	TBD	None	0
Stream HM-110	39.00976	-83.25684	Ephemeral	UNT Bull Run	109	2.5	1.5	HHEI	24	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-111	39.00883	-83.25393	Ephemeral	UNT Rarden Creek	28	1	1	HHEI	29	Modified Ephemeral	Possibly Eligible	Stable	TBD	None	0
Stream HM-112	39.00881	-83.25346	Ephemeral	UNT Rarden Creek	105	1.5	1.5	HHEI	30	Modified Ephemeral	Possibly Eligible	Stable	TBD	None	0
Stream HM-113	39.00802	-83.24941	Ephemeral	UNT Rarden Creek	349	2.5	2	HHEI	24	Modified Ephemeral	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-114	39.00736	-83.24634	Intermittent	UNT Rarden Creek	231	7.5	7	HHEI	67	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-115	39.00684	-83.24407	Intermittent	UNT Rarden Creek	322	6	5.5	HHEI	40	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-116	39.00168	-83.22579	Intermittent	UNT Camp Creek	272	4.5	3	HHEI	29	Modified Ephemeral	Eligible	Moderately Stable	TBD	None	0
Stream HM-117	39.00059	-83.22351	Intermittent	Camp Creek	367	8.5	8	Chapter 3745-1	N/A	WWH	Eligible	Stable	TBD	None	0
Stream HM-118	38.99768	-83.21804	Intermittent	UNT Camp Creek	191	10.5	10	HHEI	44	Modified Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-119	38.99562	-83.21427	Intermittent	UNT Camp Creek	238	4.5	3	HHEI	45	Modified Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-120	38.99140	-83.20643	Intermittent	UNT Camp Creek	287	5	3	HHEI	35	Modified Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-121	38.99009	-83.20371	Ephemeral	UNT Camp Creek	158	3.5	2	HHEI	25	Modified Ephemeral	Eligible	Moderately Unstable	TBD	None	0
Stream HM-122	38.98624	-83.19747	Intermittent	UNT Left Fork Camp Creek	283	11	9	HHEI	52	Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-123	38.98456	-83.19450	Intermittent	UNT Left Fork Camp Creek	246	8.5	7	HHEI	58	Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-124a	38.98185	-83.18956	Ephemeral	UNT Left Fork Camp Creek	226	1.5	1	HHEI	30	Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-124b	38.98178	-83.18971	Ephemeral	UNT Left Fork Camp Creek	38	1.5	1	HHEI	30	Small Drainage Warmwater	Eligible	Stable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-125	38.98189	-83.18938	Ephemeral	UNT Left Fork Camp Creek	124	1.5	1	HHEI	27	Modified Ephemeral	Eligible	Moderately Stable	TBD	None	0
Stream HM-126	38.97922	-83.18418	Intermittent	UNT Left Fork Camp Creek	268	1.5	1	HHEI	51	Modified Small Drainage Warmwater	Eligible	Moderately Stable	TBD	None	0
Stream HM-127	38.97420	-83.17447	Intermittent	Drake Run	411	10	9	Chapter 3745-1	N/A	WWH	Eligible	Stable	TBD	None	0
Stream HM-128	38.97148	-83.16915	Perennial	Left Fork Camp Creek	212	64	60	Chapter 3745-1	N/A	CWH	Eligible	Stable	TBD	None	0
Stream HM-129	38.96862	-83.16379	Intermittent	Rock Run	458	28	24	Chapter 3745-1	N/A	WWH	Eligible	Stable	TBD	None	0
Stream HM-131	38.95839	-83.14514	Intermittent	Rocky Fork	366	8.5	7.5	HHEI	75	Spring Water	Eligible	Stable	TBD	None	0
Stream HM-132	38.95127	-83.13382	Intermittent	Bear Creek	210	8	6.5	Chapter 3745-1	N/A	WWH	Possibly Eligible	Stable	TBD	None	0
Stream HM-133	38.94600	-83.12583	Ephemeral	UNT Bear Creek	425	6	3	HHEI	30	Modified Ephemeral	Possibly Eligible	Stable	TBD	None	0
Stream HM-134	38.94476	-83.12435	Intermittent	UNT Bear Creek	240	11	8	HHEI	49	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-135	38.92733	-83.09909	Intermittent	UNT Bear Creek	222	10	8	QHEI	57.5	Good	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-136	38.92568	-83.09672	Ephemeral	UNT Bear Creek	809	3	3	HHEI	35	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-137	38.92482	-83.09527	Ephemeral	UNT Bear Creek	544	1.5	1	HHEI	21	Ephemeral	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-138	38.92246	-83.09253	Ephemeral	UNT Bear Creek	73	1	1	HHEI	21	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-139	38.92185	-83.09175	Ephemeral	UNT Bear Creek	19	1	1	HHEI	11	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-140	38.91931	-83.08770	Intermittent	UNT Bear Creek	212	12	11.5	HHEI	63	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-141	38.91621	-83.08360	Intermittent	UNT Bear Creek	434	7	5.5	HHEI	60	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-142	38.91602	-83.08314	Intermittent	UNT Bear Creek	544	3.5	3	HHEI	54	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-143	38.91084	-83.07643	Intermittent	UNT Bear Creek	226	Unknown	Unknown	HHEI	*not scored*	*not scored* (inaccessible)	Possibly Eligible	Unknown	TBD	None	0
Stream HM-144	38.90731	-83.07177	Ephemeral	UNT Big Run	321	4	3.5	HHEI	56	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-145	38.90573	-83.06969	Ephemeral	UNT Big Run	245	3	2	HHEI	20	Modified Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-146	38.90434	-83.06832	Ephemeral	UNT Big Run	82	1	1	HHEI	17	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-147	38.90431	-83.06808	Ephemeral	UNT Big Run	167	1	1	HHEI	18	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-148	38.90356	-83.06701	Ephemeral	UNT Big Run	403	3	2	HHEI	12	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-149	38.90268	-83.06641	Ephemeral	UNT Big Run	79	1	1	HHEI	11	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-150	38.90270	-83.06616	Perennial	Big Run	565	8	5	Chapter 3745-1	N/A	WWH	Possibly Eligible	Stable	TBD	None	0
Stream HM-151	38.90193	-83.06518	Ephemeral	UNT Big Run	143	1	1	HHEI	24	Modified Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-152	38.90109	-83.06408	Intermittent	UNT Big Run	211	5	3.5	HHEI	57	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-153	38.90056	-83.06386	Ephemeral	UNT Big Run	254	3	2	HHEI	22	Modified Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-154	38.89792	-83.05971	Ephemeral	UNT Big Run	89	3.5	2	HHEI	28	Modified Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-155	38.89772	-83.05963	Intermittent	UNT Big Run	259	7	5	HHEI	63	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-156	38.89576	-83.05617	Ephemeral	UNT Slate Run	109	3.5	1.5	HHEI	44	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-157	38.89212	-83.04986	Ephemeral	UNT Slate Run	287	3.5	1.5	HHEI	26	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-158	38.89185	-83.04951	Ephemeral	UNT Slate Run	73	3.5	1.5	HHEI	26	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-159	38.89176	-83.04954	Intermittent	Slate Run	161	15	7	Chapter 3745-1	N/A	WWH	Possibly Eligible	Stable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-160	38.89158	-83.04939	Ephemeral	UNT Slate Run	114	1.5	1	HHEI	26	Modified Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-161	38.88750	-83.04541	Intermittent	UNT Slate Run	257	5	3.5	HHEI	58	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-162	38.88725	-83.04520	Ephemeral	UNT Slate Run	260	2	1.5	HHEI	37	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-163	38.88695	-83.04471	Intermittent	UNT Slate Run	412	10	3.5	HHEI	68	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-164	38.88259	-83.03994	Ephemeral	UNT Devers Run	188	1	1	HHEI	24	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-165	38.88147	-83.03843	Ephemeral	UNT Devers Run	421	1	1	HHEI	34	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-166	38.88110	-83.03804	Intermittent	UNT Devers Run	280	2.5	2	HHEI	56	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-167	38.87868	-83.03529	Intermittent	Devers Run	213	10	6	Chapter 3745-1	N/A	WWH	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-170	38.86800	-83.00948	Perennial	Scioto River	128	700	640	Chapter 3745-1	N/A	WWH	Ineligible	Moderately Stable	TBD	None	0
Stream HM-171	38.86470	-82.99216	Ephemeral	UNT Candy Run	180	2	1.5	HHEI	25	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-172	38.86447	-82.99195	Ephemeral	UNT Candy Run	88	2	1.5	HHEI	36	Small Drainage Warmwater	Possibly Eligible	Unstable	TBD	None	0
Stream HM-173	38.85957	-82.98588	Ephemeral	UNT Candy Run	521	1.5	1	HHEI	15	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-174	38.85857	-82.98518	Perennial	Candy Run	224	25	22	Chapter 3745-1	N/A	WWH	Possibly Eligible	Stable	TBD	None	0
Stream HM-175	38.85393	-82.98200	Intermittent	UNT Candy Run	277	25	22	HHEI	24	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-176	38.85357	-82.98179	Intermittent	UNT Candy Run	207	2	1.5	HHEI	56	Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-177	38.85101	-82.98004	Ephemeral	UNT Candy Run	249	3	2.5	HHEI	25	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-178	38.84142	-82.97466	Intermittent	UNT Scioto River	212	2	1	HHEI	52	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-179	38.84089	-82.97432	Perennial	UNT Scioto River	516	3.5	2.5	QHEI	50	Fair	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-180	38.84022	-82.97423	Ephemeral	UNT Scioto River	243	7	4.5	HHEI	44	Modified Small Drainage Warmwater	Possibly Eligible	Unstable	TBD	None	0
Stream HM-181	38.83322	-82.96894	Ephemeral	UNT Sturgeon Run	88	3	1.5	HHEI	38	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-182	38.82983	-82.96518	Intermittent	UNT Sturgeon Run	220	2	1.5	HHEI	30	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-183	38.82970	-82.96520	Ephemeral	UNT Sturgeon Run	93	4	3.5	HHEI	36	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-184	38.82827	-82.96381	Ephemeral	UNT Sturgeon Run	231	1.5	1	HHEI	32	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-185	38.82586	-82.96195	Ephemeral	UNT Sturgeon Run	216	2	1.5	HHEI	28	Ephemeral	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-186	38.82076	-82.95844	Intermittent	UNT Long Run	245	2.5	2	HHEI	29	Ephemeral	Eligible	Moderately Unstable	TBD	None	0
Stream HM-187	38.81796	-82.95601	Intermittent	Long Run	208	3	1.5	Chapter 3745-1	N/A	WWH	Eligible	Moderately Stable	TBD	None	0
Stream HM-188	38.81731	-82.95538	Ephemeral	UNT Long Run	356	2.5	2	HHEI	36	Modified Small Drainage Warmwater	Eligible	Moderately Unstable	TBD	None	0
Stream HM-189	38.81509	-82.95406	Ephemeral	UNT Long Run	116	4	3	HHEI	45	Modified Small Drainage Warmwater	Eligible	Moderately Stable	TBD	None	0
Stream HM-190	38.81163	-82.95099	Ephemeral	UNT Long Run	417	2.5	1	HHEI	26	Modified Ephemeral	Eligible	Moderately Stable	TBD	None	0
Stream HM-191	38.81090	-82.95067	Intermittent	UNT Long Run	270	4	3	HHEI	54	Modified Small Drainage Warmwater	Eligible	Moderately Stable	TBD	None	0
Stream HM-192	38.81066	-82.95058	Ephemeral	UNT Long Run	208	3	2	HHEI	55	Modified Small Drainage Warmwater	Eligible	Stable	TBD	None	0
Stream HM-193	38.80794	-82.94843	Ephemeral	UNT Long Run	259	2	1	HHEI	44	Modified Small Drainage Warmwater	Eligible	Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-194	38.80559	-82.94667	Intermittent	UNT Long Run	233	4	2	HHEI	49	Modified Small Drainage Warmwater	Eligible	Moderately Stable	TBD	None	0
Stream HM-195	38.80152	-82.94320	Ephemeral	UNT Bonser Run	311	2.5	2	HHEI	23	Modified Ephemeral	Eligible	Moderately Stable	TBD	None	0
Stream HM-196	38.80119	-82.94318	Intermittent	Bonser Run	336	2	2	Chapter 3745-1	N/A	WWH	Eligible	Unstable	TBD	None	0
Stream HM-197	38.79946	-82.94187	Ephemeral	UNT Munn Run	532	5	3	HHEI	48	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-198	38.79823	-82.94105	Ephemeral	UNT Munn Run	116	4	3	HHEI	23	Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-199	38.79813	-82.94094	Ephemeral	UNT Munn Run	257	2	1	HHEI	36	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-200	38.79419	-82.93851	Intermittent	UNT Munn Run	403	4	4	HHEI	40	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-201	38.79368	-82.93819	Intermittent	UNT Munn Run	214	6	4	HHEI	51	Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-202	38.79158	-82.93691	Ephemeral	UNT Munn Run	206	5	4	HHEI	35	Small Drainage Warmwater	Possibly Eligible	Unstable	TBD	None	0
Stream HM-203	38.79144	-82.93654	Ephemeral	UNT Munn Run	151	2	1.5	HHEI	30	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-204	38.79119	-82.93633	Ephemeral	UNT Munn Run	108	3	2	HHEI	30	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-205	38.78688	-82.93413	Intermittent	UNT Munn Run	300	5	3	HHEI	35	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-206	38.78359	-82.93267	Intermittent	UNT Munn Run	212	5	3	HHEI	35	Modified Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-207	38.78005	-82.93206	Ephemeral	UNT Munn Run	377	4	2	HHEI	33	Small Drainage Warmwater	Possibly Eligible	Unstable	TBD	None	0
Stream HM-208	38.77999	-82.93190	Ephemeral	UNT Munn Run	109	3	2	HHEI	33	Small Drainage Warmwater	Possibly Eligible	Unstable	TBD	None	0
Stream HM-209	38.77807	-82.93168	Ephemeral	UNT Munn Run	201	4	3	HHEI	30	Small Drainage Warmwater	Possibly Eligible	Moderately Unstable	TBD	None	0
Stream HM-210	38.77182	-82.93028	Ephemeral	UNT Munn Run	105	2	1	HHEI	15	Ephemeral	Possibly Eligible	Unstable	TBD	None	0

TABLE 4-2: Delineated Stream Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream ID	Location		Stream Type	Stream Name	Delineated Length (feet)	Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Stream Stability	Stream Crossing?	Proposed Impacts	
	Latitude	Longitude						Method	Score	Category / Rating / OAC Designation				Fill Type	Length (LF)
Stream HM-211	38.76679	-82.92885	Ephemeral	UNT Munn Run	220	3	1	HHEI	35	Small Drainage Warmwater	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-212	38.76304	-82.92788	Ephemeral	UNT Munn Run	327	10	4	HHEI	32	Conduct Biological Assessment	Possibly Eligible	Unstable	TBD	None	0
Stream HM-213	38.75859	-82.92690	Perennial	UNT Munn Run	230	12	10	QHEI	36.5	Poor	Possibly Eligible	Stable	TBD	None	0
Stream HM-214	38.75601	-82.92704	Ephemeral	UNT Munn Run	165	15	5	HHEI	57	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-215	38.75522	-82.92744	Ephemeral	UNT Munn Run	48	8	2	HHEI	25	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-216	38.75509	-82.92736	Perennial	Munn Run	329	40	6	Chapter 3745-1	N/A	WWH	Possibly Eligible	Unstable	TBD	None	0
Stream HM-230	38.94127	-83.11926	Perennial	UNT Bear Creek	208	4	4	HHEI	68	Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-231	38.94031	-83.11735	Ephemeral	UNT Bear Creek	15	1	1	HHEI	25	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-232	38.94091	-83.11499	Perennial	Bear Creek	461	30	20	Chapter 3745-1	N/A	WWH	Possibly Eligible	Moderately Stable	TBD	None	0
Stream HM-234	38.93645	-83.11265	Intermittent	UNT Bear Creek	88	2	2	HHEI	30	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Stream HM-236	38.93428	-83.10897	Ephemeral	UNT Bear Creek	156	2.5	2.5	HHEI	39	Modified Small Drainage Warmwater	Possibly Eligible	Stable	TBD	None	0
Stream HM-237	38.93068	-83.10421	Ephemeral	UNT Bear Creek	121	2	2	HHEI	25	Modified Ephemeral	Possibly Eligible	Unstable	TBD	None	0
Total: 219				**Total:**	**51,122**										

TABLE 4-3: Delineated Pond Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Pond ID	Location		Delineated Area (acre)
	Latitude	Longitude	
Pond HM-001	39.15596	-83.63706	0.17
Pond HM-002	39.13801	-83.59456	0.02
Pond HM-003	39.10623	-83.52140	0.12
Pond HM-004	39.09067	-83.48961	0.08
Pond HM-005	39.06926	-83.42099	0.39
Pond HM-006	39.01372	-83.27326	0.01
Pond HM-007	39.00230	-83.22641	0.28
Pond HM-008	38.98832	-83.20142	0.10
Pond HM-009	38.96129	-83.14973	0.03
Pond HM-010	38.86953	-83.01835	0.10
Pond HM-011	38.86954	-83.01699	0.62
Pond HM-012	38.82251	-82.95927	0.03
Pond HM-013	38.81939	-82.95674	0.04
Pond HM-017	38.94017	-83.11729	0.08
		Total:	**2.07**

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
Vertebrate Animals						
Indiana bat (*Myotis sodalis*)	E	E	Hibernacula = Caves and mines Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests. [a, b] Presence assumed wherever suitable habitat occurs. Indiana bat hibernaculum buffers and roosts tree buffers exist in portions of the southern line in Scioto County. Northern section of the line in Highland County is within capture buffers of male and female Indiana bats and roost trees. [a, b]	Yes	ODNR: The western 15,000 feet of the project route, and the portion of the project route between the Ohio River and the Scioto River are within the vicinity of records for the Indiana bat (*Myotis sodalis*). Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. The remainder of the project route is within the range of the Indiana bat. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior any to cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species. No Natural Heritage Database records within a 1-mile radius. USFWS: USFWS requests additional information regarding tree clearing for proposed portions of the line in Scioto and Highland Counties to evaluate the potential for the project to impact this species.	No; Avoided with winter tree clearing. Avoid disturbance April 1 – September 30
Northern long-eared bat *(Myotis septentrionalis*)	T	T	Hibernates in caves and mines; swarms in surrounding wooded areas in autumn. During late spring and summer, roosts and forages in upland forests. [a, b] Presence assumed wherever suitable habitat occurs. Portions of the project are within capture buffers of Northern long-eared bat. ODNR identified that the project is within the range of this species.	Yes	ODNR: No Natural Heritage Database records within a 1-mile radius. USFWS: USFWS requests additional information regarding tree clearing for proposed portions of the line in Scioto and Highland Counties to evaluate the potential for the project to impact this species.	No; Avoided with winter tree clearing. Avoid disturbance April 1 – September 30

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
Eastern spadefoot (*Scaphiopus holbrookii*)	E	N/A	Exceptionally rare and is known to occur in Athens, Coshocton, Lawrence, Morgan, and Washington counties. It is found only in areas of sandy soils that are associated with river valleys in southeastern Ohio. Breeding habitats are located within these areas and may include flooded agricultural fields or other water-holding depressions. [c]	No	ODNR: The DOW recommends that a DOW approved herpetologist conducts a habitat suitability survey along the project route to determine if suitable habitat exists for the eastern spadefoot toad. If suitable habitat is determined to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by the approved herpetologist. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Timber Rattlesnake (*Crotalus horridus*)	E	S	These snakes are a woodland species. In addition to using wooded areas, timbers also utilize sunlit gaps in the canopy for basking and deep rock crevices for overwintering (den sites).[c]	Yes	ODNR: The DOW recommends that a DOW approved herpetologist conducts a habitat suitability survey along the project route to determine if suitable habitat exists for the timber rattlesnake. If suitable habitat is determined to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/ minimization plan be developed and implemented by the approved herpetologist. No Natural Heritage Database records within a 1-mile radius.	Habitat surveys were completed in January 2021 with suitable habitat identified. Results have been submitted to ODNR and an avoidance/minimization plan will be developed and implemented.
Eastern hellbender (*Cryptobanchus alleganiensis)*	E	S	Prefer large, swift flowing streams where they can hide during the day under large rocks. Mostly found in unglaciated (south and east) Ohio. [d]	No	ODNR: Due to the location, this project is not likely to impact this species. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Mud salamander (*Pseudotriton montanus*)	T	N/A	Muddy springs, slow floodplain streams, and swamps along slow streams; backwater ponds and marshes created by beaver activity. [c]	Yes	ODNR: The DOW recommends that a DOW approved herpetologist conducts a habitat suitability survey along the project route to determine if suitable habitat exists for the mud salamander. If suitable habitat is determined to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/ minimization plan be developed and implemented by the approved herpetologist. No Natural Heritage Database records within a 1-mile radius.	Habitat surveys were completed in January 2021 with suitable habitat identified. Based on the current project plans, all suitable habitat will be avoided. Results have been submitted to ODNR.
Green salamander (*Aneides aeneus*)	E	N/A	Prefers deep moist cracks in limestone and sandstone cliffs. [d]	No	ODNR: Due to the location, this project is not likely to impact this species. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
Cave salamander (*Eurycea lucifuga*)	E	N/A	Prefers dimly lighted zone near the entrance of wet limestone caves. Can also be encountered in wooded areas along streams with a connection to groundwater, far removed from any known caves. [d]	No	ODNR: Due to the location, this project is not likely to impact this species. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Allegheny woodrat (*Neotoma magister*)	E	N/A	Utilizes rocky outcrops such as cliffs and caves in forested areas. [b]	No	ODNR: Due to the location, this project is not likely to impact this species. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Lark sparrow (*Chondestes grammacus*)	E	N/A	Nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. [b]	Yes	ODNR: If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, this project is not likely to impact this species. No Natural Heritage Database records within a 1-mile radius.	Habitat surveys were completed in January 2021 with suitable habitat identified. If suitable habitat cannot be avoided during the nesting season, then presence/absence surveys will be conducted.
Loggerhead shrike (*Lanius ludovicianus*)	E	N/A	Nests in hedgerows, thickets, and fencerows. Hunts over hayfields, pastures, and other grasslands. [b]	Yes	ODNR: If thickets or other types of dense shrubbery habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 to August 1. If this habitat will not be impacted, this project is not likely to impact this species. No Natural Heritage Database records within a 1-mile radius.	Habitat surveys were completed in January 2021 with suitable habitat identified. If suitable habitat cannot be avoided during the nesting season, then presence/absence surveys will be conducted.
American eel (*Aguilla rostrata*)	T	N/A	These eels are found in any Ohio stream and in Lake Erie, but their home range covers most of the eastern United States. They are most normally found in large rivers with continuous flow.	Yes	ODNR: The DOW recommends no in-water work in perennial streams from April 15 to 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 these or other aquatic species. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work.
Bigeye shiner (*Notropis boops*)	T	N/A	Flowing pools of moderately clear creeks, small to medium rivers with large permanent pools over clear sand, gravel, or rock. [c]	Yes	ODNR: please see comment for American eel. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
Blue sucker (*Cycleptus elongatus*)	T	N/A	Found in deep, swiftly flowing chutes or channels of large rivers. They are not uncommon in fast, gravel-bottomed chutes of the lower Scioto River, the lower portions of the Great and Little Miami, Muskingum, and Hocking Rivers. They can also be found in the Ohio River. [c]	No	ODNR: please see comment for American eel. Natural Heritage Database record location within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Channel darter (*Percina copelandi*)	T	N/A	Found in large, coarse sand or fine gravel bars in large rivers. [c]	No	ODNR: please see comment for American eel. Natural Heritage Database record location within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Goldeye (*Hiodon alosoides*)	E	N/A	Moderate to fast currents in medium to large lowland rivers. Can also inhabit quiet turbid waters of small lakes, ponds, and marshes. [c]	Yes	ODNR: please see comment for American eel. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work.
Mountain madtom (*Noturus eleutherus*)	E	N/A	Small to large rivers, in fast flowing, clear water sections over sand, gravel, and rubble, often near vegetation. [c]	Yes	ODNR: please see comment for American eel. No ODNR records within a 1-mile radius.	No; Project will avoid all in-water work.
Northern madtom (*Noturus stigmosus*)	E	N/A	Large creeks and small rivers with clear to turbid water and moderate currents. [c]	Yes	ODNR: please see comment for American eel. No ODNR records within a 1-mile radius.	No; Project will avoid all in-water work.
Paddlefish (*Polyodon spathula*)	T	N/A	Found in the Ohio River and up to the first dam on its larger tributaries. They prefer sluggish pools and backwater areas of these rivers and streams. Most common it the Ohio River from Portsmouth downstream to the Indiana state line. [c]	No	ODNR: please see comment for American eel. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
Popeye shiner (*Notropis ariommus*)	E	N/A	Warm relatively clear flowing waters of large creeks and small to medium rivers. Associated with gravel substrates, occurs in runs, backwaters near appreciable currents, and head of pools. [c]	Yes	ODNR: please see comment for American eel. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work.
River darter (*Percina shumardi*)	T	N/A	Found in very large rivers typically in areas of swift current. They are found over a gravel or rocky bottom in depths of 3 feet or more. [c]	No	ODNR: please see comment for American eel. Natural Heritage Database record location within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Shortnose gar (*Lepisosteus platostomus*)	E	N/A	Open slow silty or clear-water rivers, wave-washed shoals of large lakes, quiet creek pools, and river backwaters. [c]	Yes	ODNR: please see comment for American eel. No Natural Heritage Databse records within a 1-mile radius.	No; Project will avoid all in-water work.
Shovelnose sturgeon (*Scaphirhynchus paltorynchus*)	E	N/A	Deep channels and embayments of large turbid rivers; often over sand mixed with gravel or mud in areas with strong current. [c]	No	ODNR: please see comment for American eel. Natural Heritage Database record location within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Tippecanoe darter (*Etheostoma Tippecanoe*)	T	N/A	Found in medium to large streams and rivers in the Ohio River drainage in Ohio. They are found in riffles of moderate current with a substrate of gravel and small cobble sized rocks. [c]	Yes	ODNR: please see comment for American eel. Natural Heritage Database record location within a 1-mile radius.	No; Project will avoid all in-water work.
Invertebrate Animals						
Black sandshell (*Ligumia recta*)	T	N/A	Found in the riffle and run areas of medium to large rivers in areas dominated by sand or gravel. [c]	Yes	ODNR: This project must not have an impact on freshwater native mussels along the project route. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2018), 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 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if	No; Project will avoid all in-water work; therefore, surveys are not required.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
					in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. No Natural Heritage Database records within a 1-mile radius.	
Butterfly (*Ellipsaria lineolata*)	E	N/A	Large rivers in sand or gravel substrates. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Fanshell (*Cyprogenia stegaria*)	E	E	medium to large streams with stable substrate containing relatively firm and clean gravel, sand, and silt mixture [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not preset within the Project area.
Clubshell (*Pleurobema clava*)	E	N/A	Generally found in clean, coarse sand and gravel in runs, often just downstream of a riffle and cannot tolerate mud or slack water conditions. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Ebonyshell (*Fusconaia ebena*)	E	N/A	Inhabits large rivers and prefers swift water and stable sandy or gravely shoals. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Elephant-ear (*Elliptio crassidens crassidens*)	E	N/A	Inhabits large rivers in mud, sand or fine gravel. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Fawnsfoot (*Truncilla donaciformis*)	T	N/A	Found in large rivers or the lower reaches of medium-sized streams in sand or gravel. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
Little spectaclecase (*Villosa lienosa*)	E	N/A	Typically inhabits small creeks to medium-sized rivers, usually along banks of slower currents. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Long-solid (*Fusconaia maculata maculata*)	E	N/A	Found in large rivers in gravel substrates. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Monkeyface (*Quadrula metanevra*)	E	N/A	Found in habitats dominated by stable substrates in water over 6 feet deep. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Northern riffleshell (*Epioblasma torulosa rangiana*)	E	E	Preferred habitat appears to require swiftly moving water. The high oxygen concentrations in swift streams may be necessary for survival. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Ohio pigtoe (*Pleurobema cordatum*)	E	N/A	Inhabitant of large rivers, found in strong currents on substrates of sand and gravel. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Pink mucket (*Lampsilis orbiculata*)	E	E	Found in mud and sand in the shallow riffles of major rivers and their tributaries. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Purple cat's paw (*Epioblasma o. obliquata*)	E	E	Inhabits large river systems in sand and gravel substrates in runs and riffles. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Pyramid pigtoe (*Pleurobema rubrum*)	E	N/A	Found in medium to large rivers in sand or gravel in areas with a good current. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Rayed bean (*Villosa fabalis*)	E	E	Usually found in or near shoal or riffle areas, and in the shallow, wave-washed areas of lakes. Preferred substrate types include gravel and sand. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
			Known to occur in Scioto Brush Creek and the Scioto River.		USFWS: Should the proposed project directly or indirectly impact this mussel species, USFWS recommends a survey to be conducted to determine presence or probable absence of the mussel in the vicinity of the propose site. Any survey should be designed and conducted in coordination with the Ohio Field office. Surveyors must have valid Federal and State permits to survey for federally listed mussels in Ohio. If any impact to native riparian vegetation is proposed we recommend further coordination with our office to determine if impacts to mussel species may occur. Best management practices that minimize stormwater runoff and erosion should be diligently implemented in these areas.	
Sharp-ridged pocketbook (*Lampsilis ovate*)	E	N/A	Inhabits large rivers in coarse sand or gravel. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Sheepnose (*Plethobasus cyphyus*)	E	E	Found in shallow areas of large rivers or streams. Prefers swift to moderate current. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Snuffbox (*Epioblasma triquetra*)	E	E	Small to medium-sized creeks and some larger rivers, in areas with a swift current. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Threehorn wartyback (*Obliquaria reflexa*)	T	N/A	Found in large rivers in sand or gravel; may be locally abundant in impoundments. [c]	No	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Known habitat types are not present within the Project area.
Wartyback (*Quadrula nodulata*)	E	N/A	Medium to large rivers at depths of 15-18 feet on sand and mud substrates [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Washboard (*Megalonaias nervosa*)	E	N/A	Found in large rivers, inhabiting the main channel areas of a stream. Suitable habitat consists of slow current areas with substrates composed of sand, gravel, or mud. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.

TABLE 5-1: Federally Listed and State-Listed Threatened and Endangered Species Impact Assessment

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

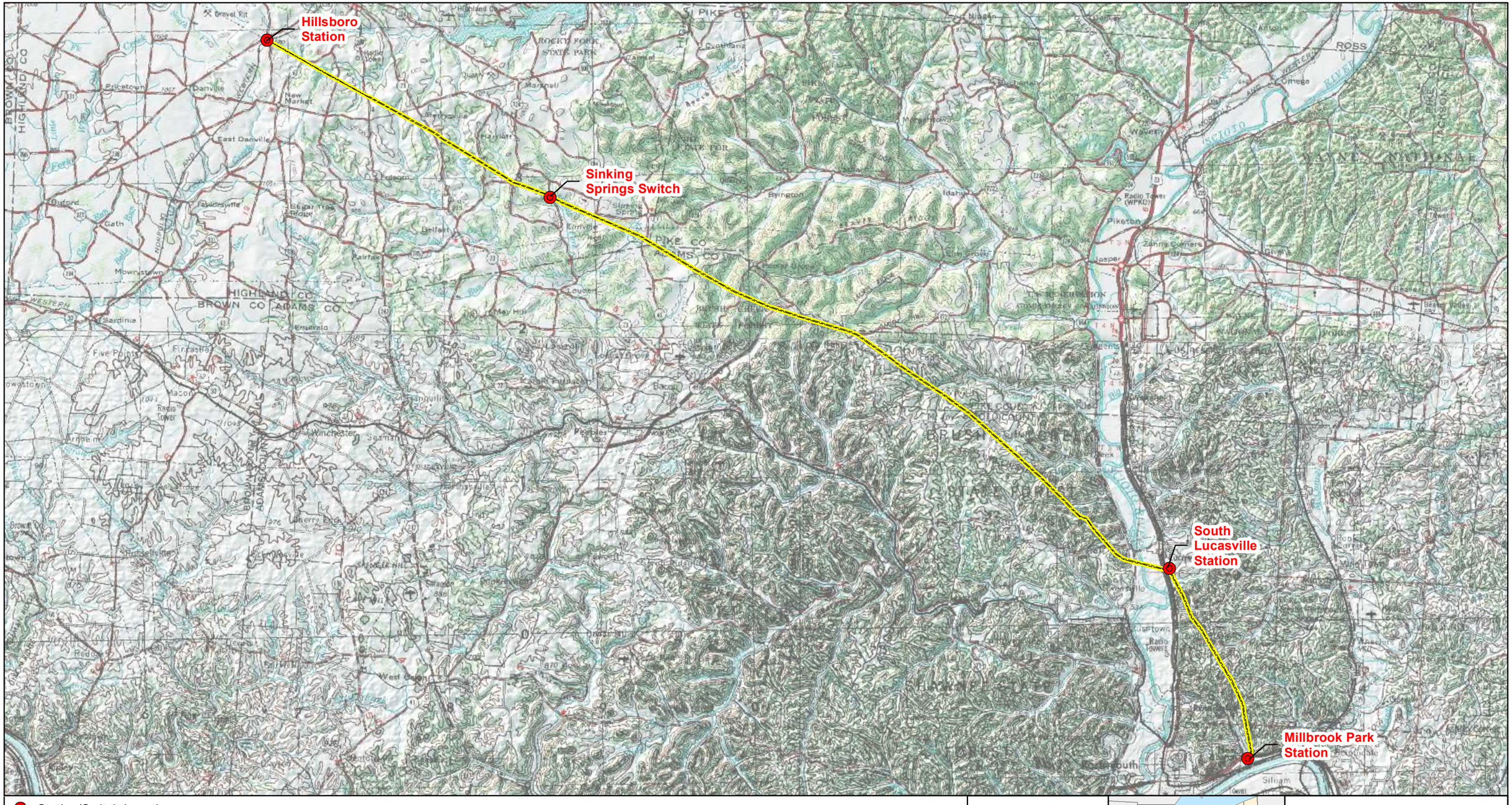
Common Name (Scientific Name) [a, b]	State Status [b]	Federal Status [a, b]	Typical Habitat [b]	Habitat Observed	Agency Comment	Potential Impacts and Avoidance Dates [a, b]
Yellow sandshell (*Lampsilis teres*)	E	N/A	Occurs in medium-sized creeks to large rivers, often in slower current areas of stream borders. [c]	Yes	ODNR: please see comment for black sandshell. No Natural Heritage Database records within a 1-mile radius.	No; Project will avoid all in-water work; therefore, surveys are not required.
Vascular Plants						
Virginia spiraea (*Spiraea virginiana*)	N/A	T	Riparian habitats along rocky streambanks or sand bars. [a] Known populations on large, long-established gravel bars in Scioto County and along Scioto Brush Creek.	Yes	ODNR: No Natural Heritage Database records within a 1-mile radius. USFWS: The current alignment occurs in a township where the species is known to occur, but does not cross the Scioto Brush Creek in this township. At this time it does not appear that the project will impact this species, however if the alignment were to be modified, further coordination with this office is requested.	No; Current alignment does not cross the creek in the township in which the species is known to occur.
Running buffalo clover (*Trifolium stoloniferum*)	N/A	E	Partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails and in rights-of-way. Required periodic disturbance and a somewhat open habitat to successfully flourish, but cannot tolerate full-sun, full-shade, or severe disturbance. [a]	Yes	No Natural Heritage Database records within a 1-mile radius.	No; No known records or occurrences are present within the Project area.

Status Key: E = Endangered; T = Threatened; S = Species of Concern; SI = Special Interest

Sources:

[a] USFWS, 2020
[b] ODNR DOW, 2020b
[c] NatureServe, 2020
[d] ODNR DOW, 2020
[e] Sanders, 2001

Figures



Station/Switch Location

Environmental Survey Corridor

Base Map Source:
ESRI USA 250K Topo Map
Columbus and
Huntington Quadrangles

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

April 30, 2021



Figure 1
Overview Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 2 4 6 8
Miles

Hillsboro Station

Sinking Springs Switch

Station/Switch Location
Environmental Survey Corridor
NHD Stream
NWI Wetland
100-Year Floodplain
Floodway

Base Map Source:
ESRI World Topo

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

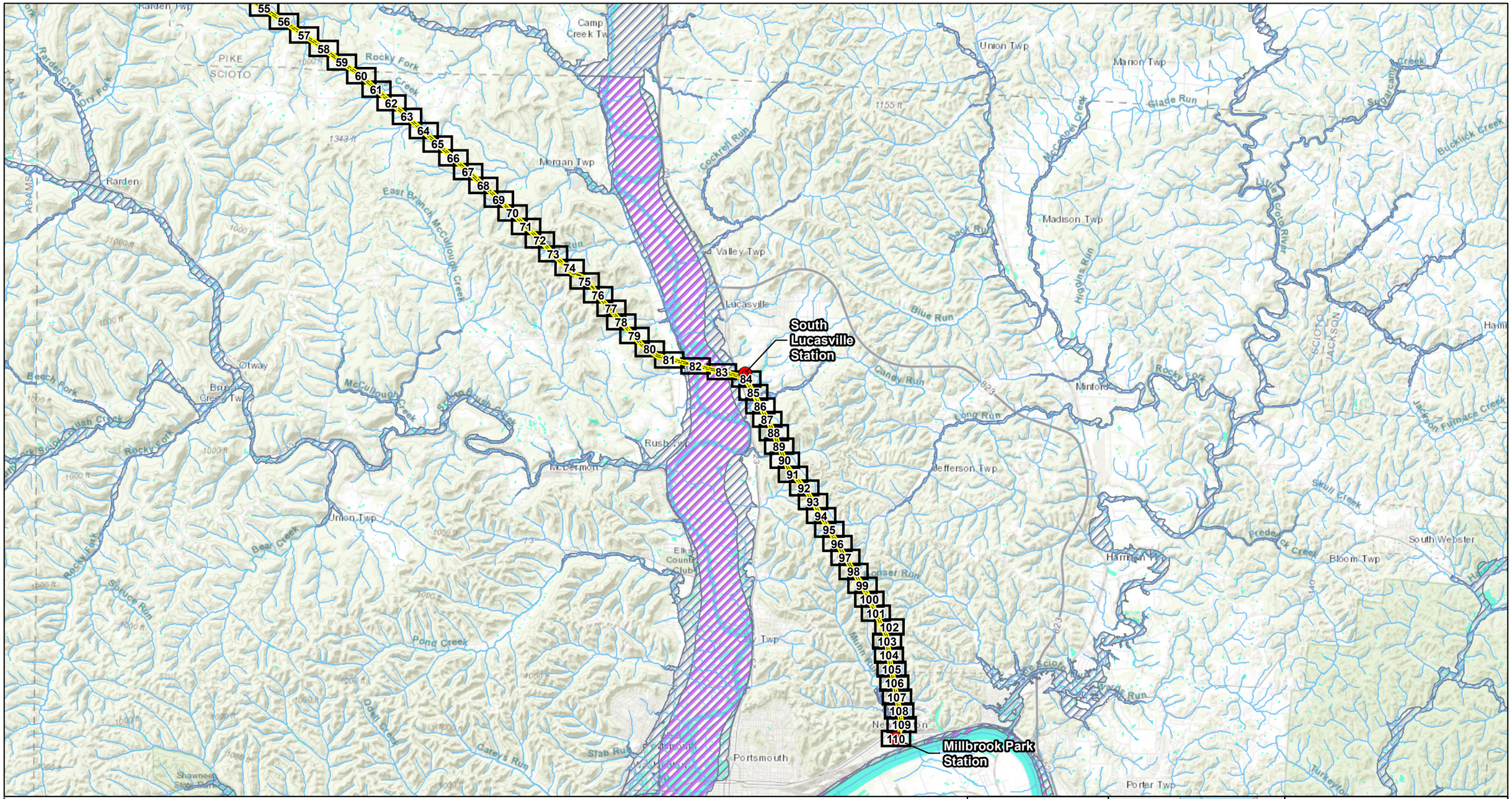
May 05, 2021



Figure 2
Soil, NHD, NWI, FEMA Index Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 2 4
Miles



- Station/Switch Location
- Environmental Survey Corridor
- NHD Stream
- NWI Wetland
- 100-Year Floodplain
- Floodway

Base Map Source:
ESRI World Topo

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2
Soil, NHD, NWI, FEMA Index Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 2 4
Miles



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-1
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor

Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-2
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-3
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-4
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

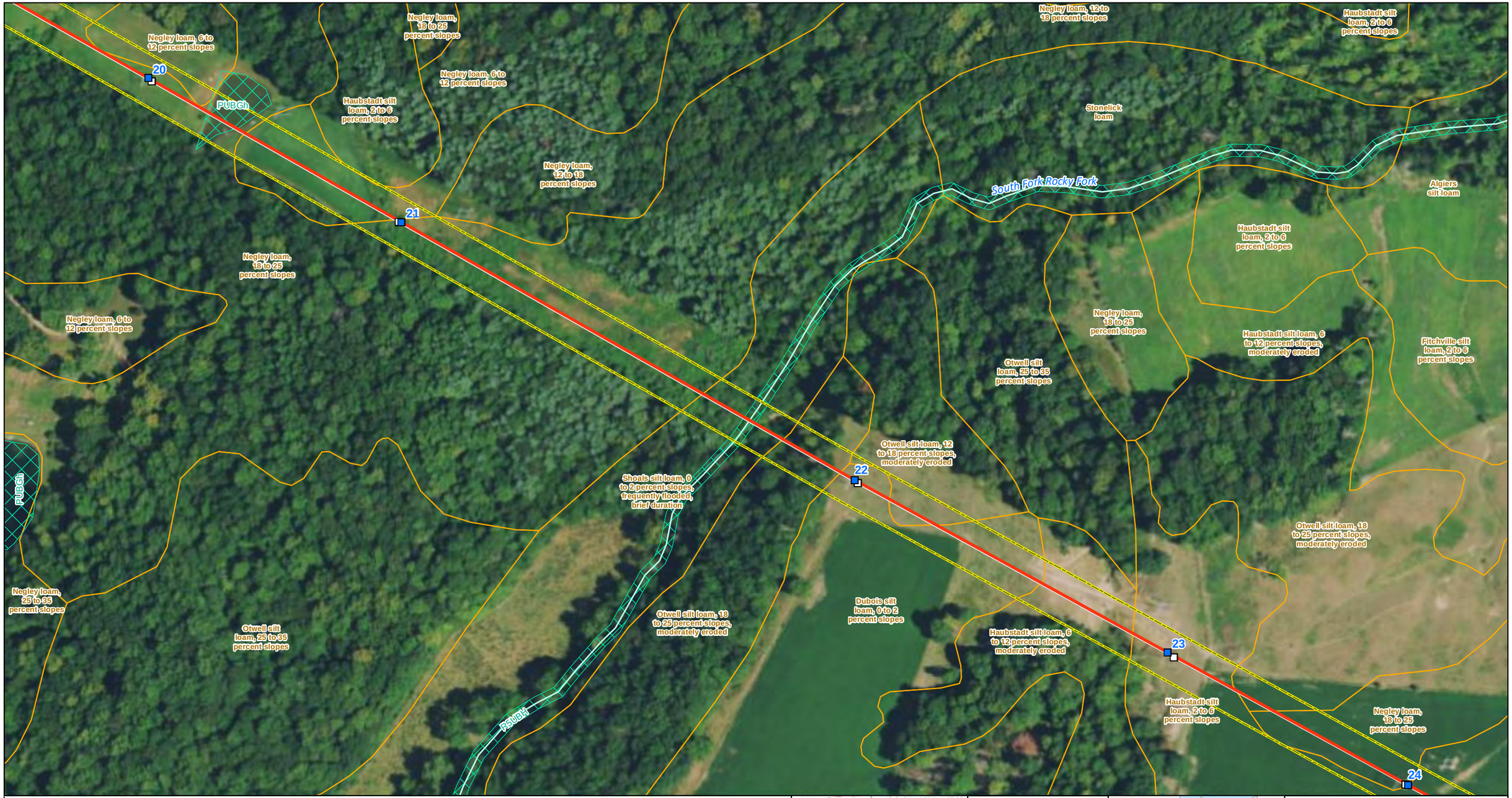
May 05, 2021



Figure 2-5
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-6
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-7
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-8
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-9
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

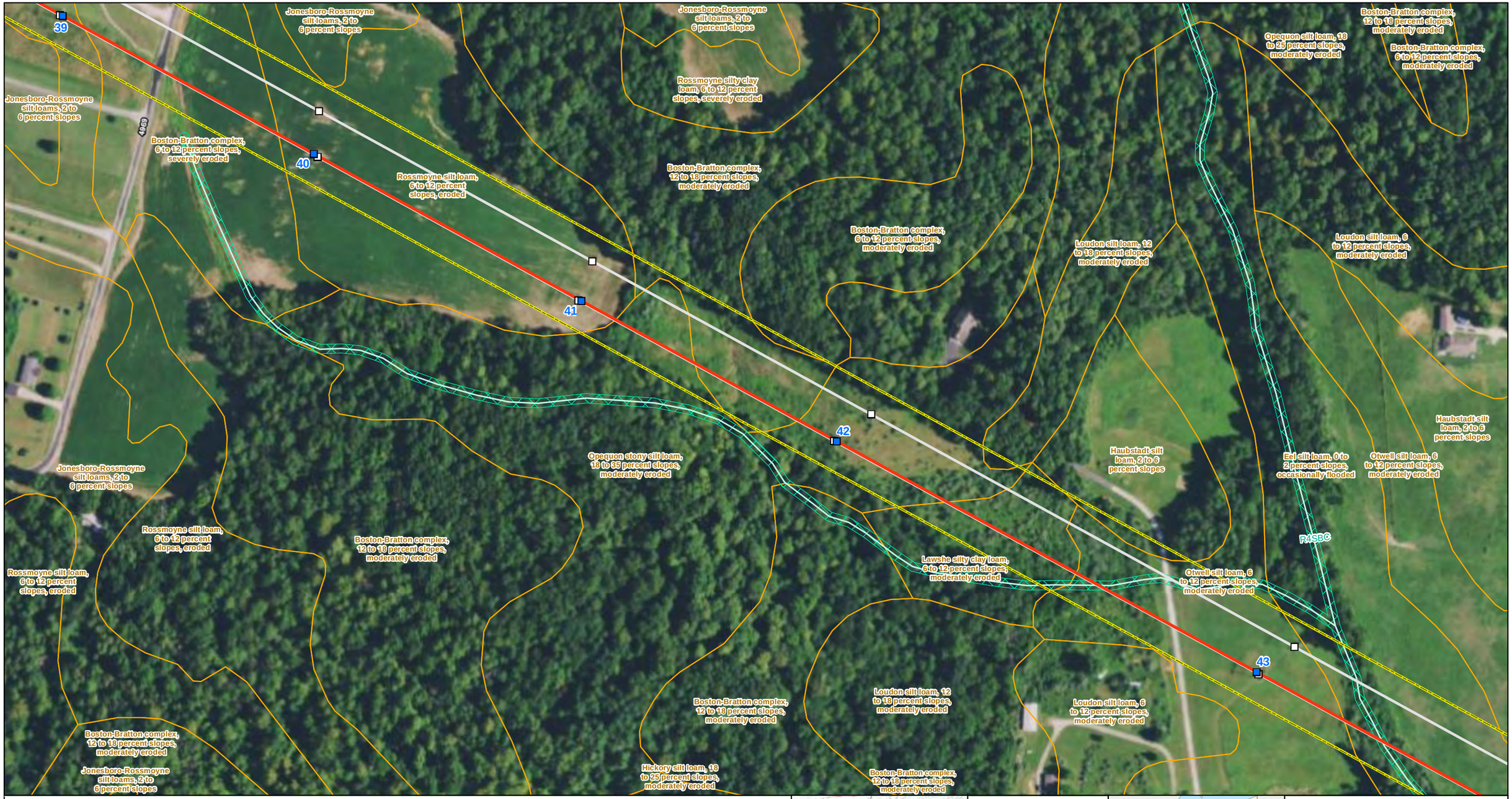
May 05, 2021



Figure 2-10
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-11
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

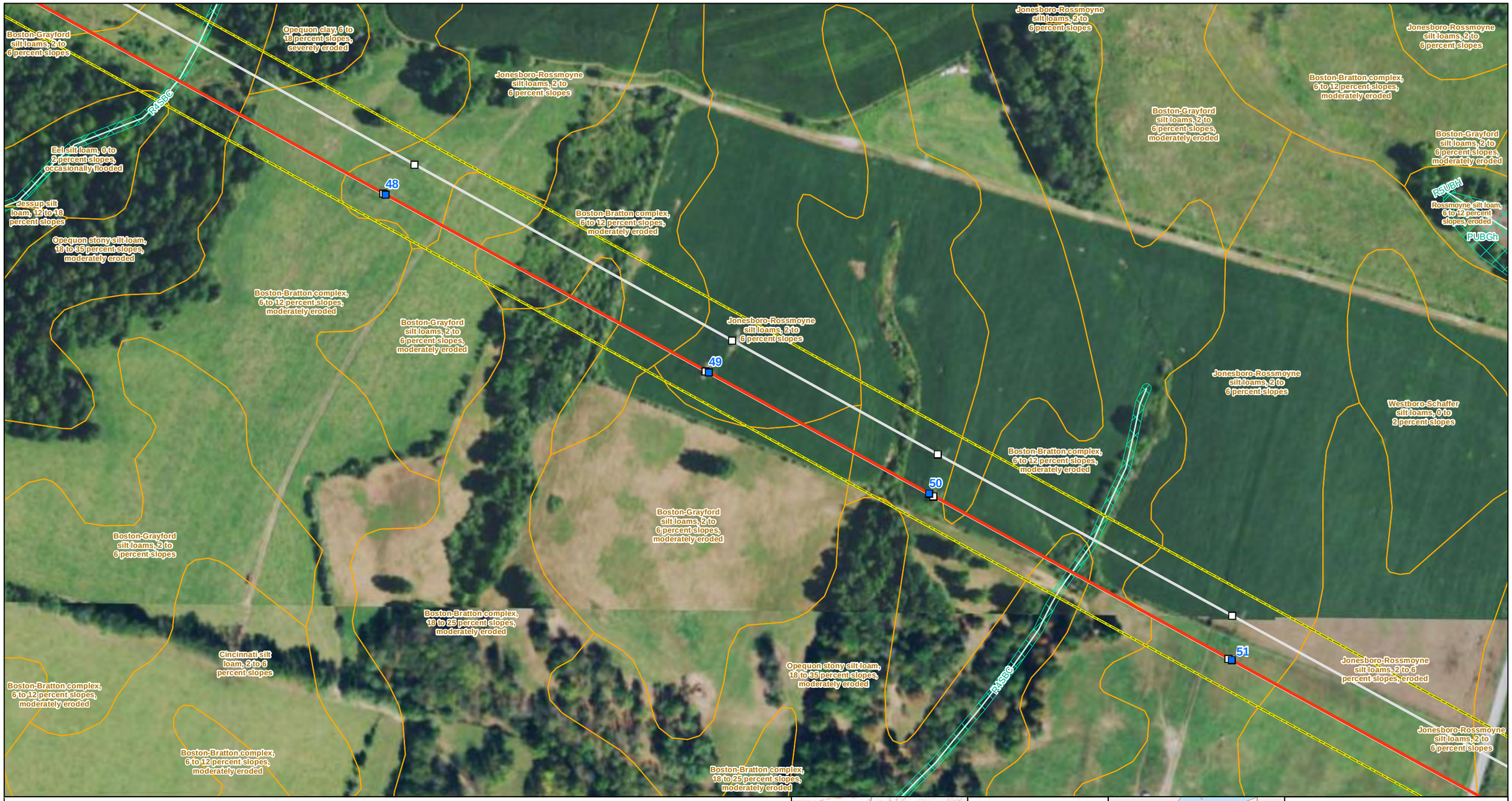
May 05, 2021



Figure 2-12
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

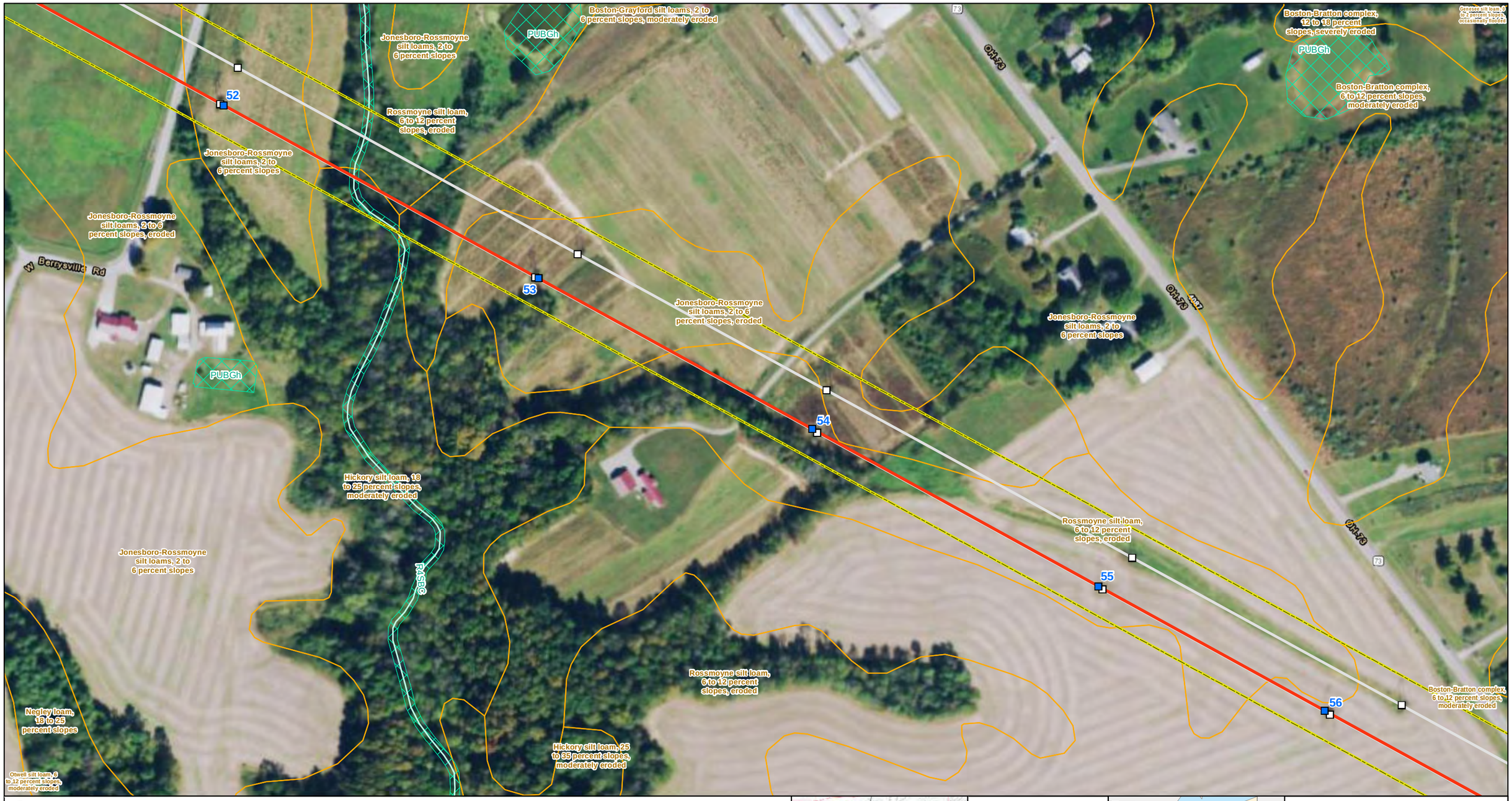
May 05, 2021



Figure 2-13
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-14
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021

Figure 2-15
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-16
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-17
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

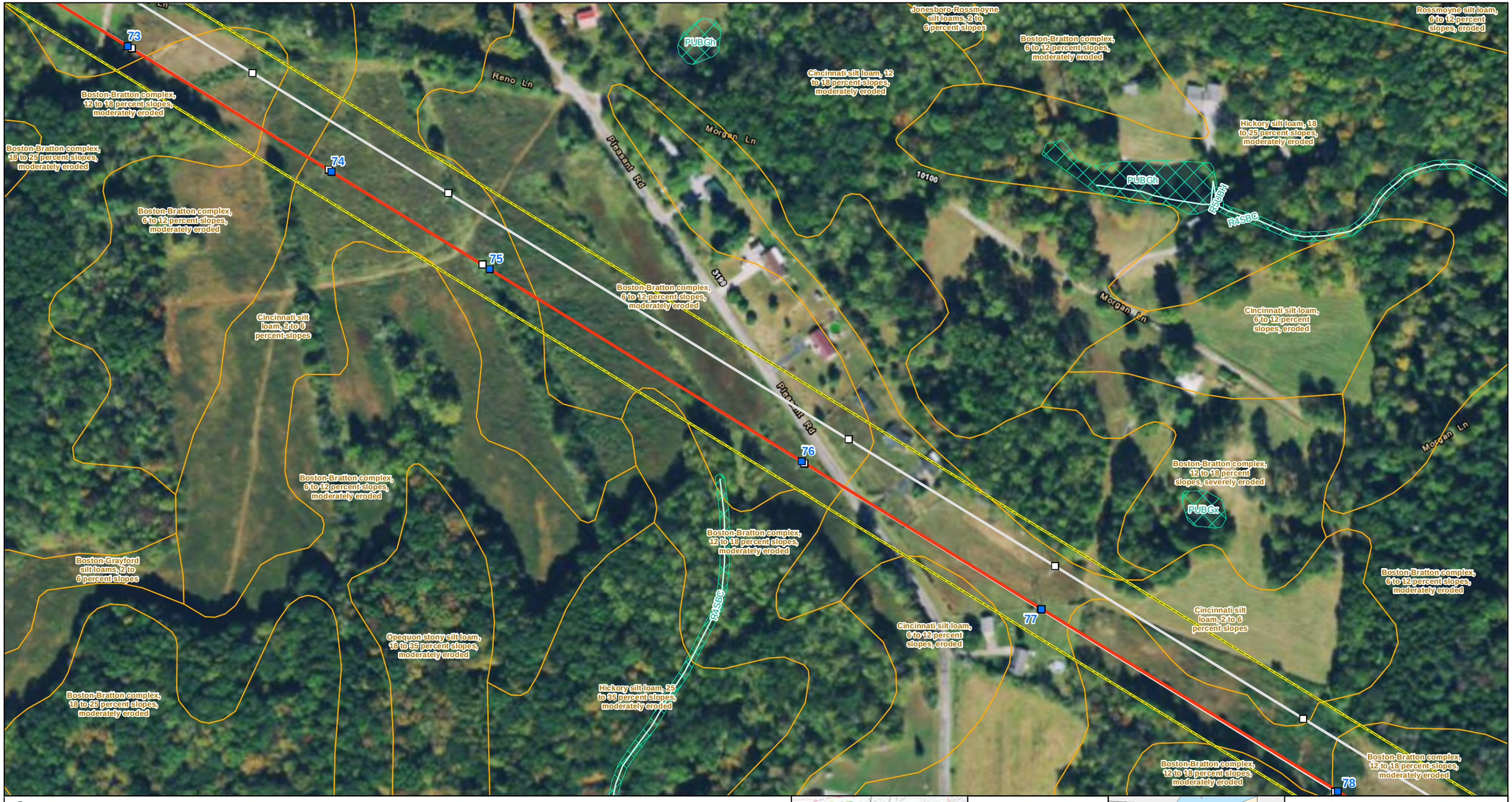
May 05, 2021



Figure 2-18
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Base Map Source:
National Agriculture Imagery Program

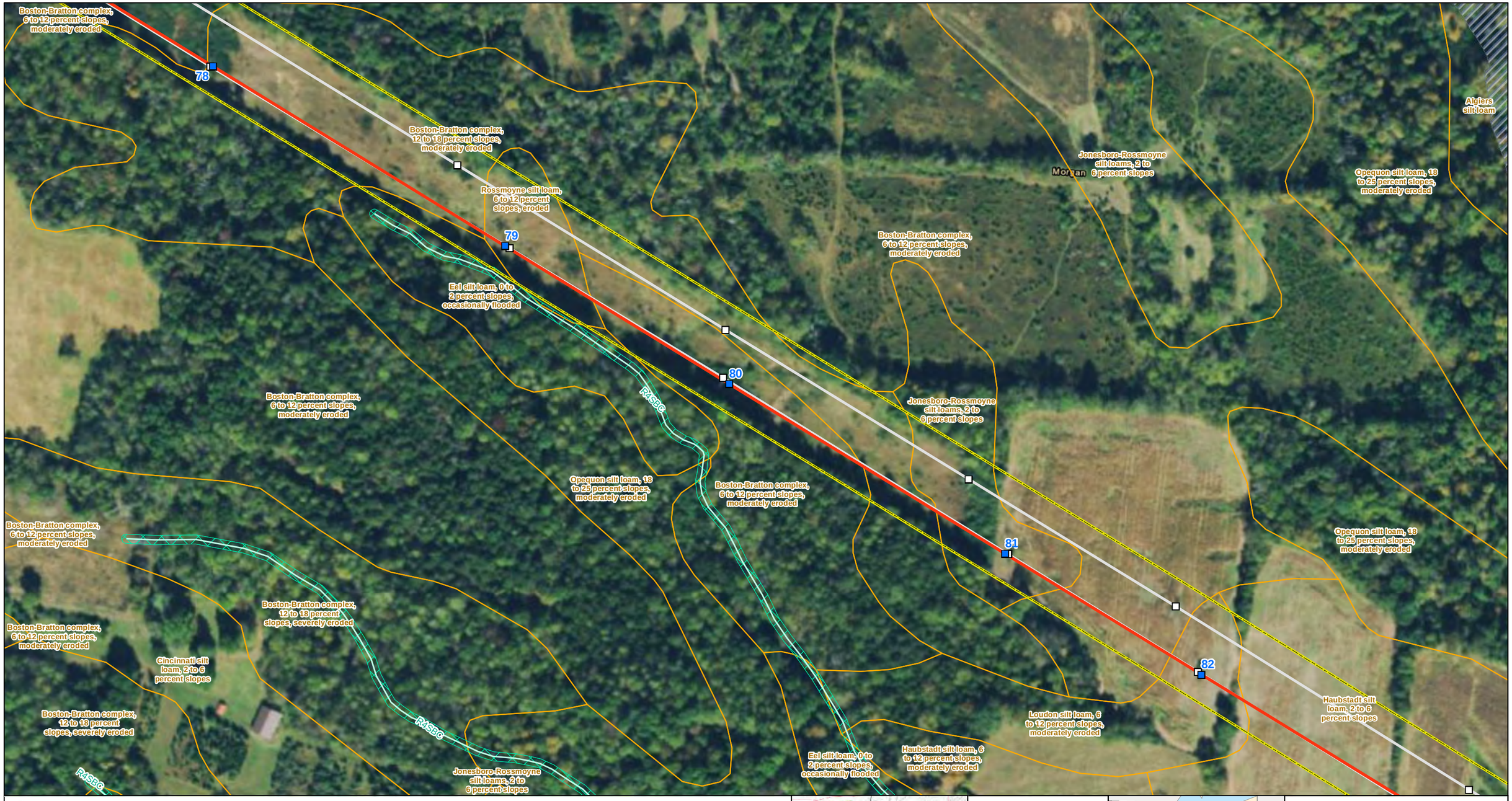
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State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021

Figure 2-19
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

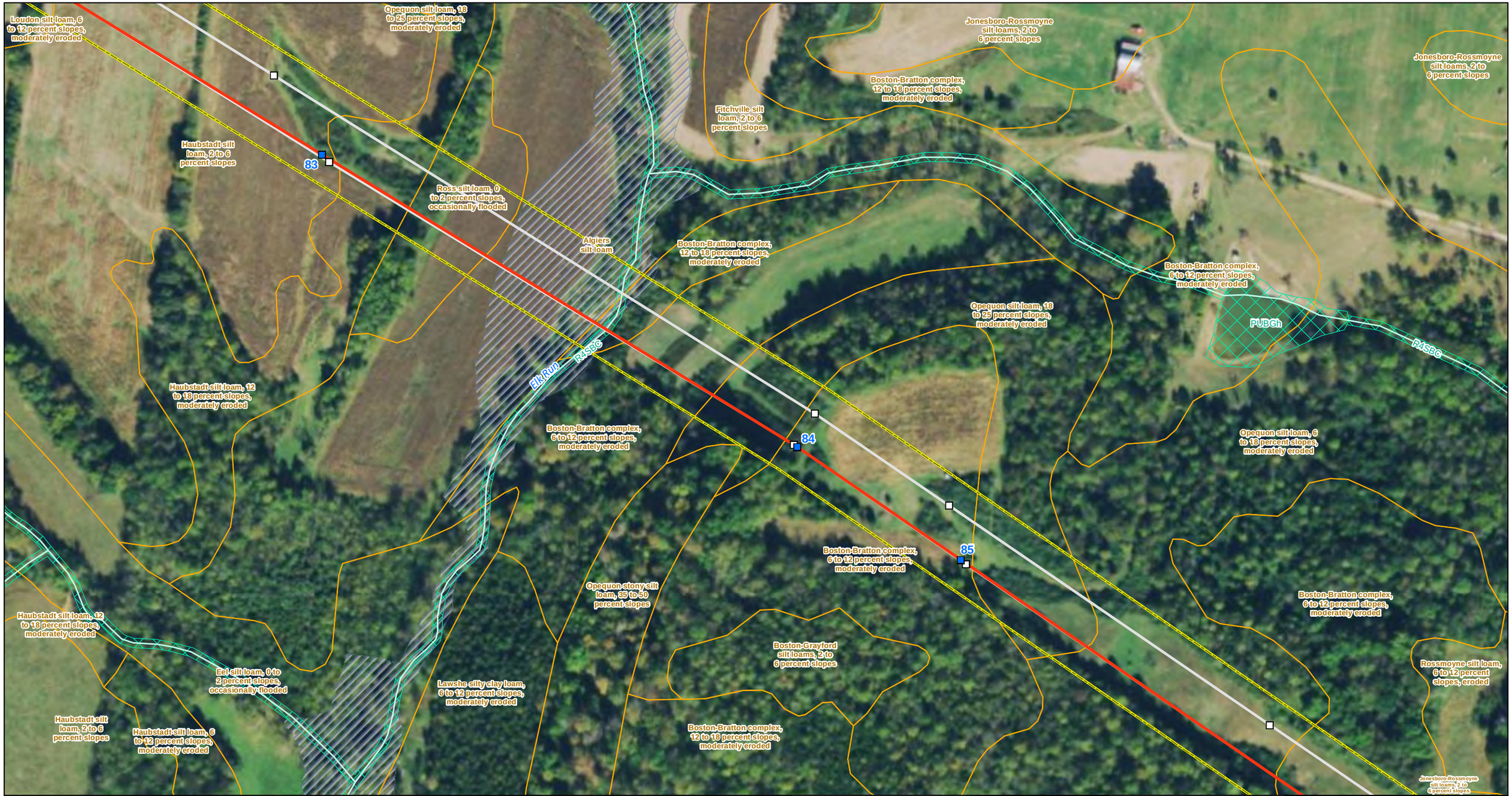
May 05, 2021



Figure 2-20
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-21
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

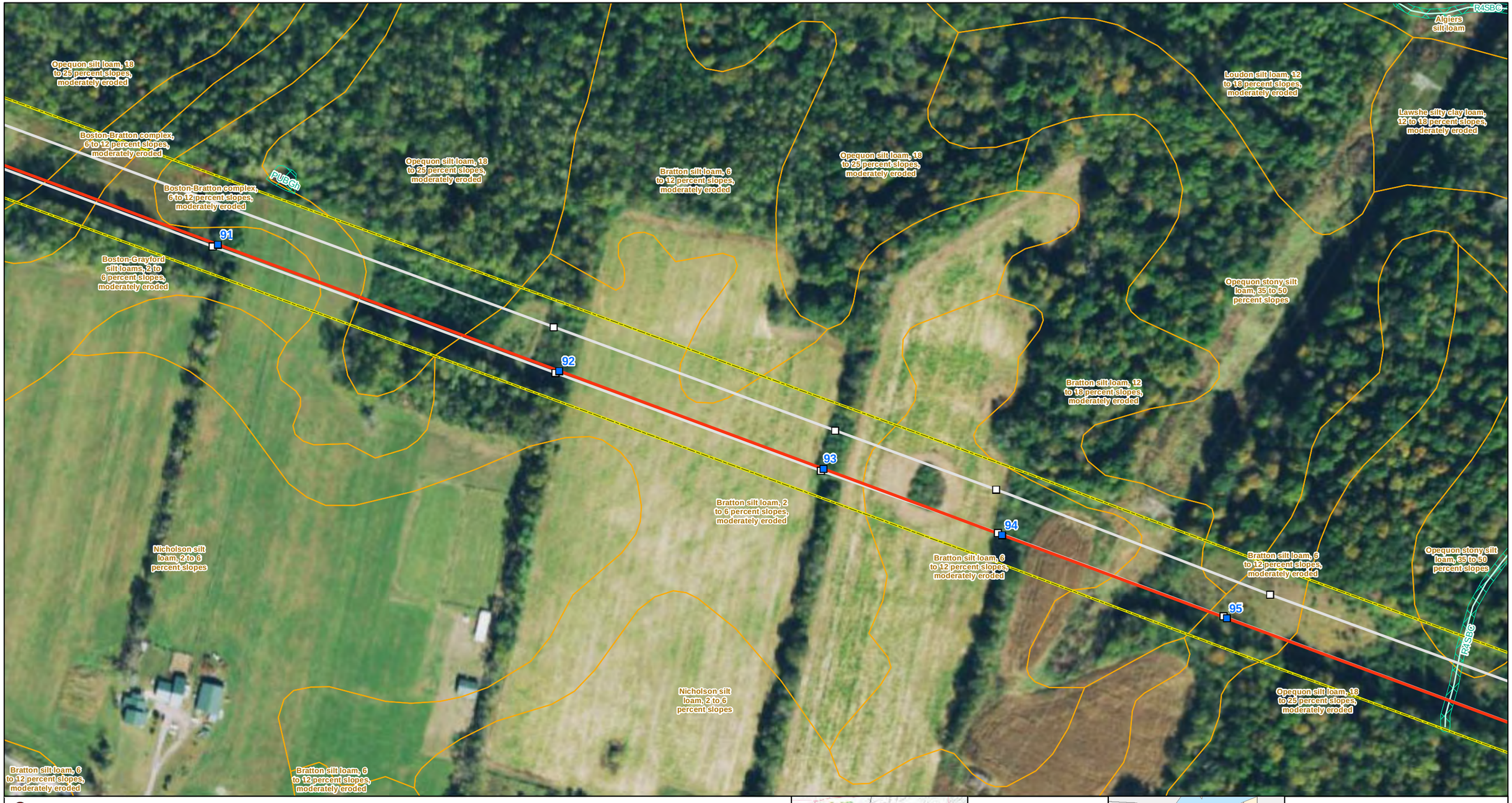
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Figure 2-22
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-23
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

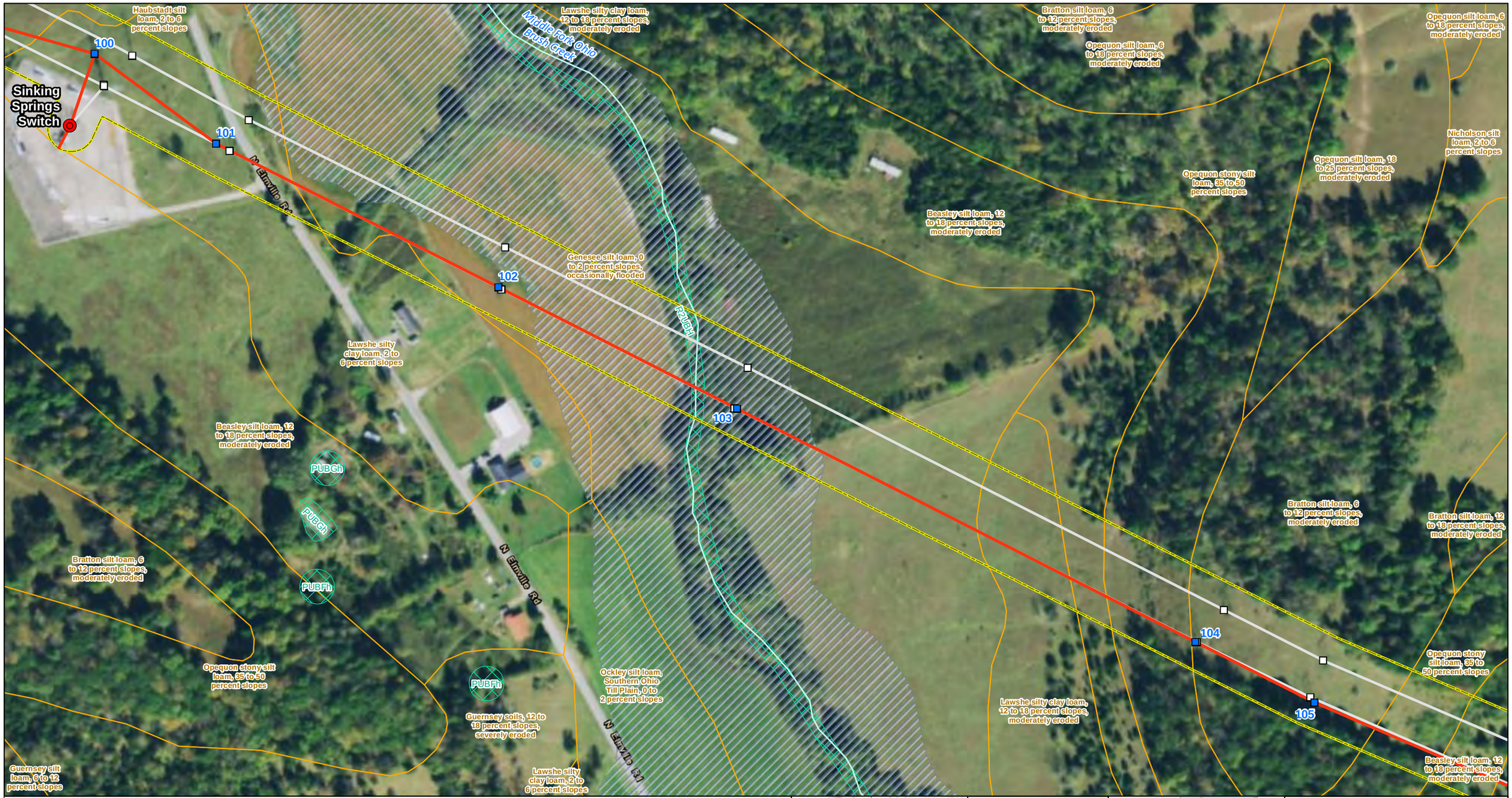
May 05, 2021



Figure 2-24
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

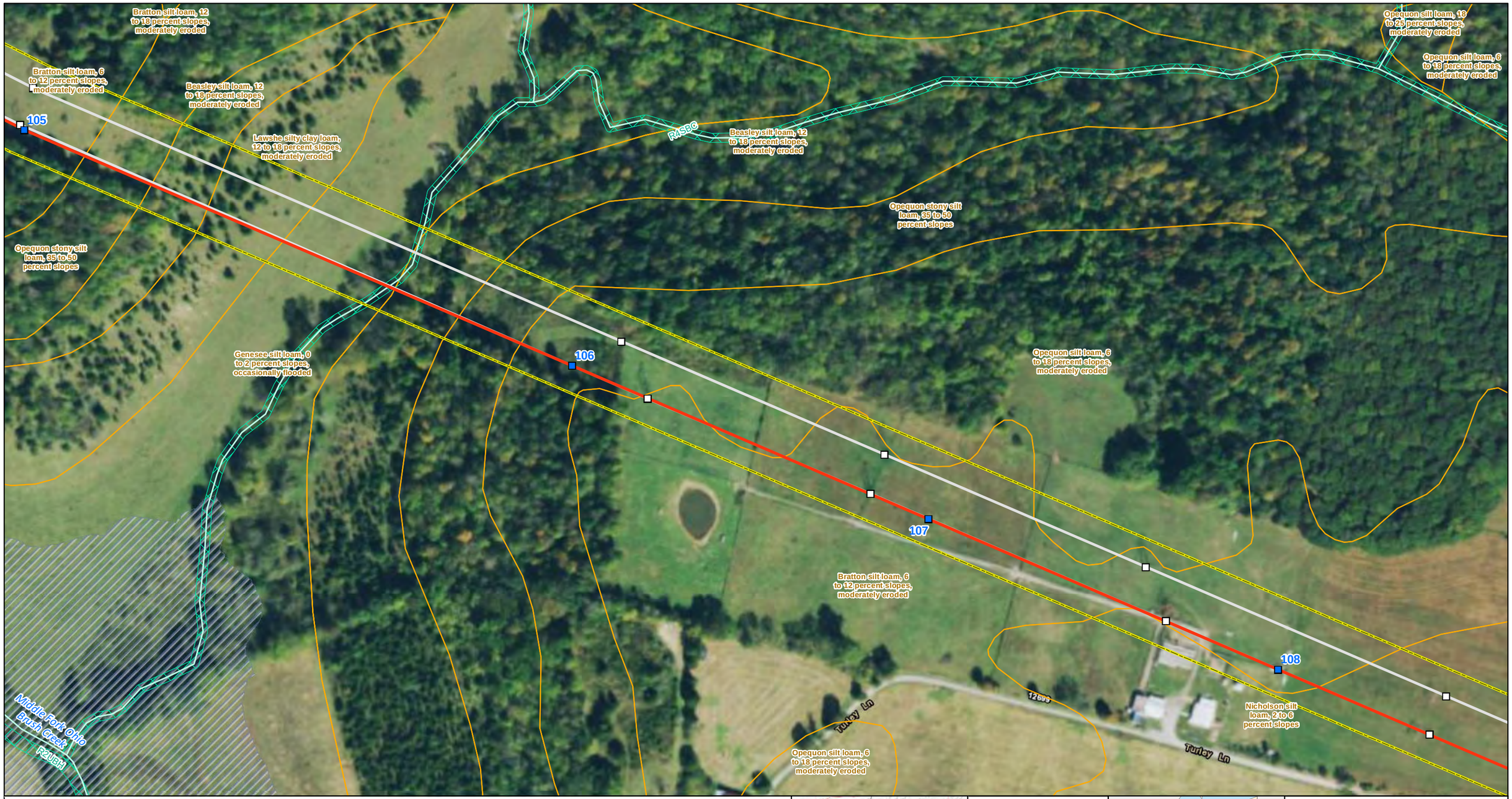
May 05, 2021



Figure 2-25
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

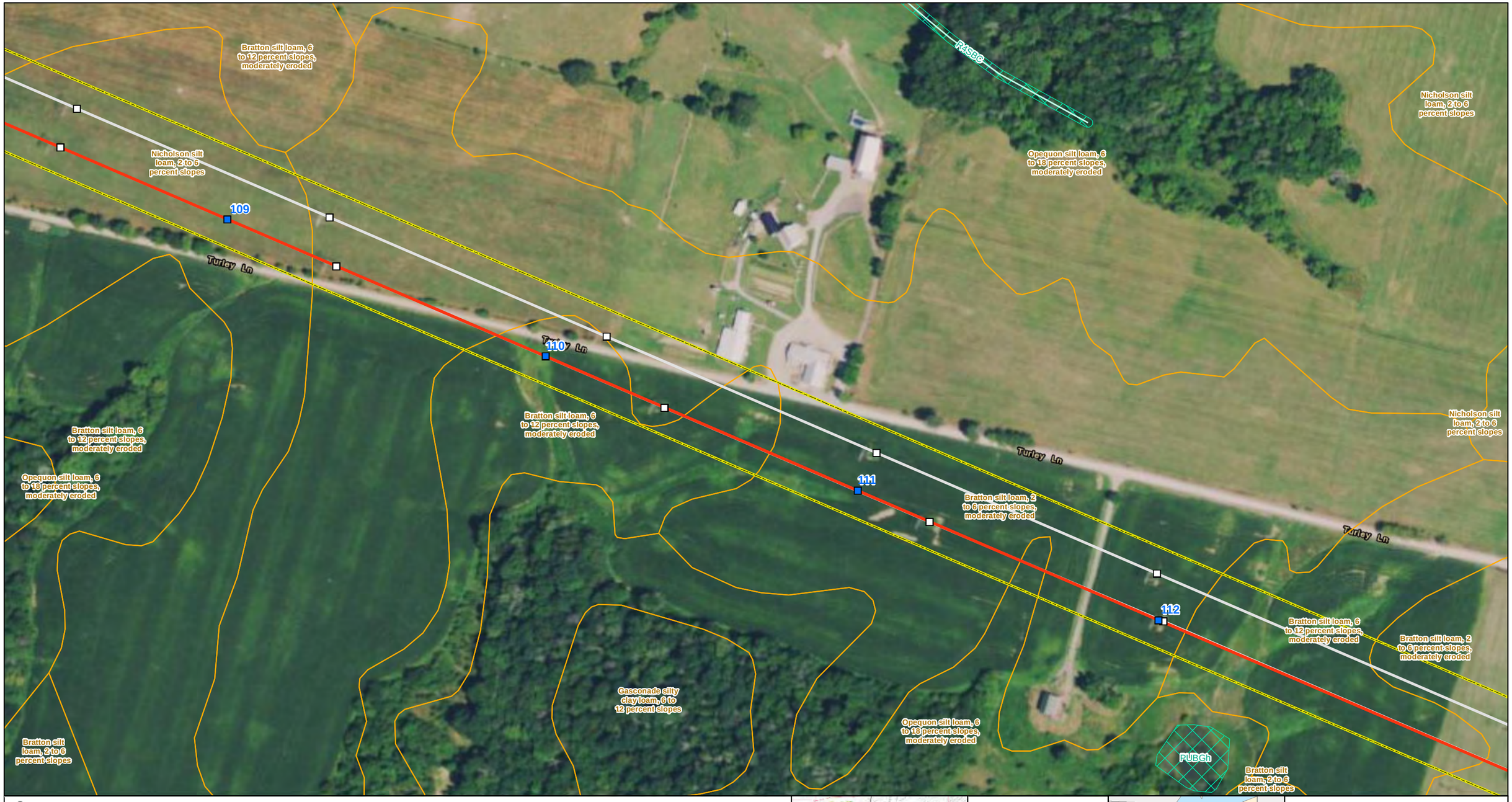
May 05, 2021



Figure 2-26
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-27
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
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FIPS 3402 (US Feet)
Datum: NAD 1983

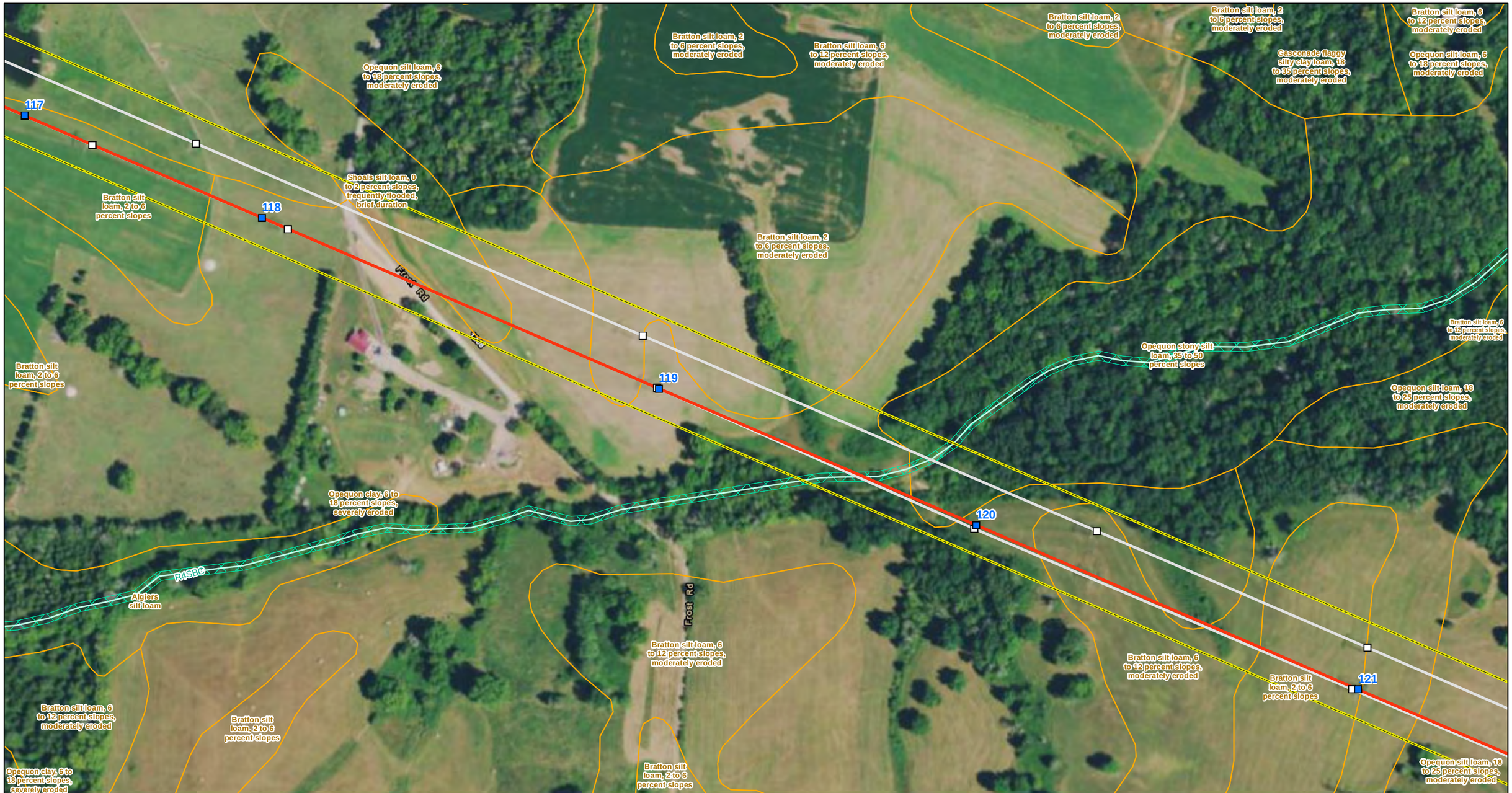
May 05, 2021



Figure 2-28
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

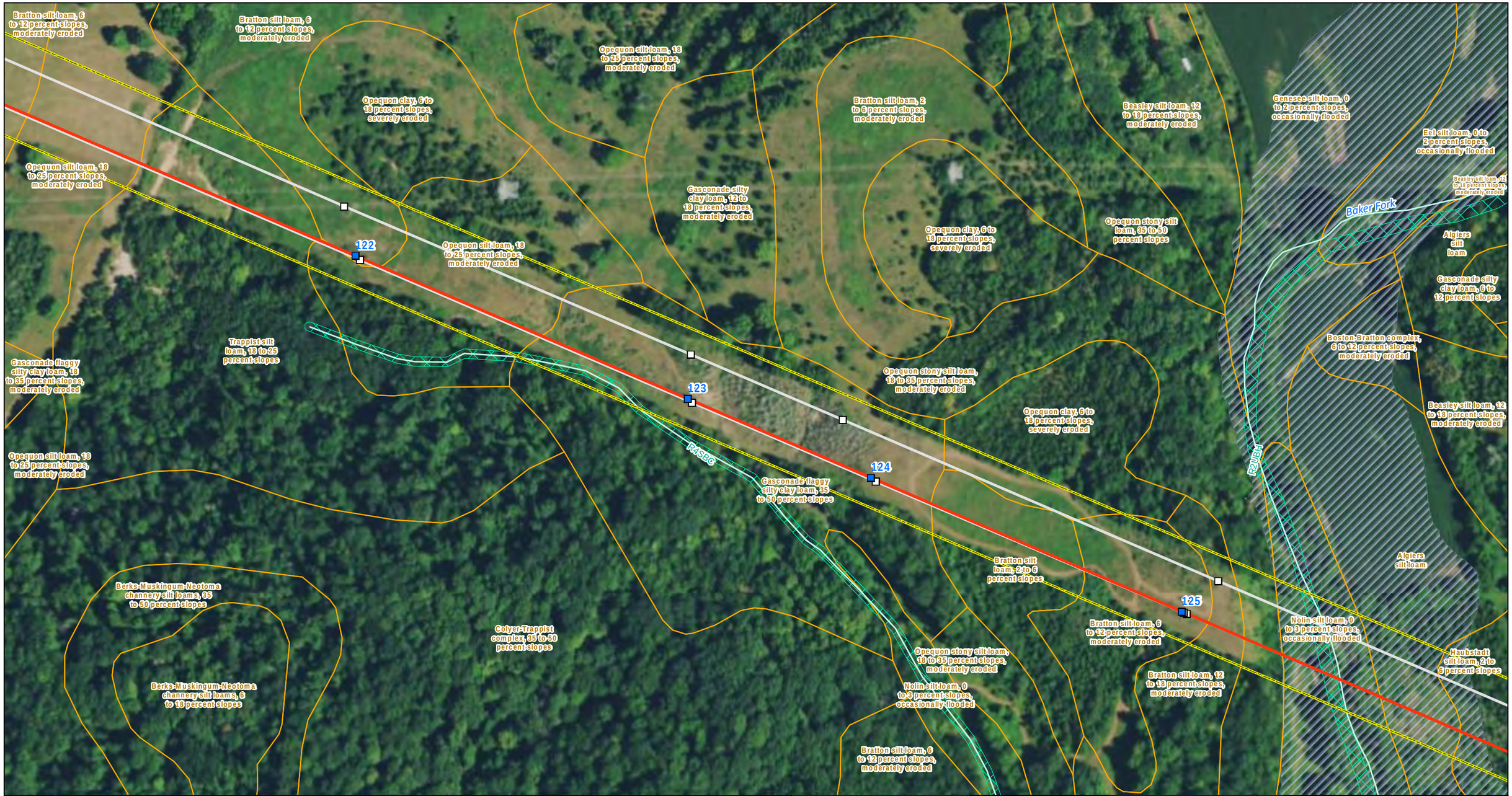
May 05, 2021



Figure 2-29
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

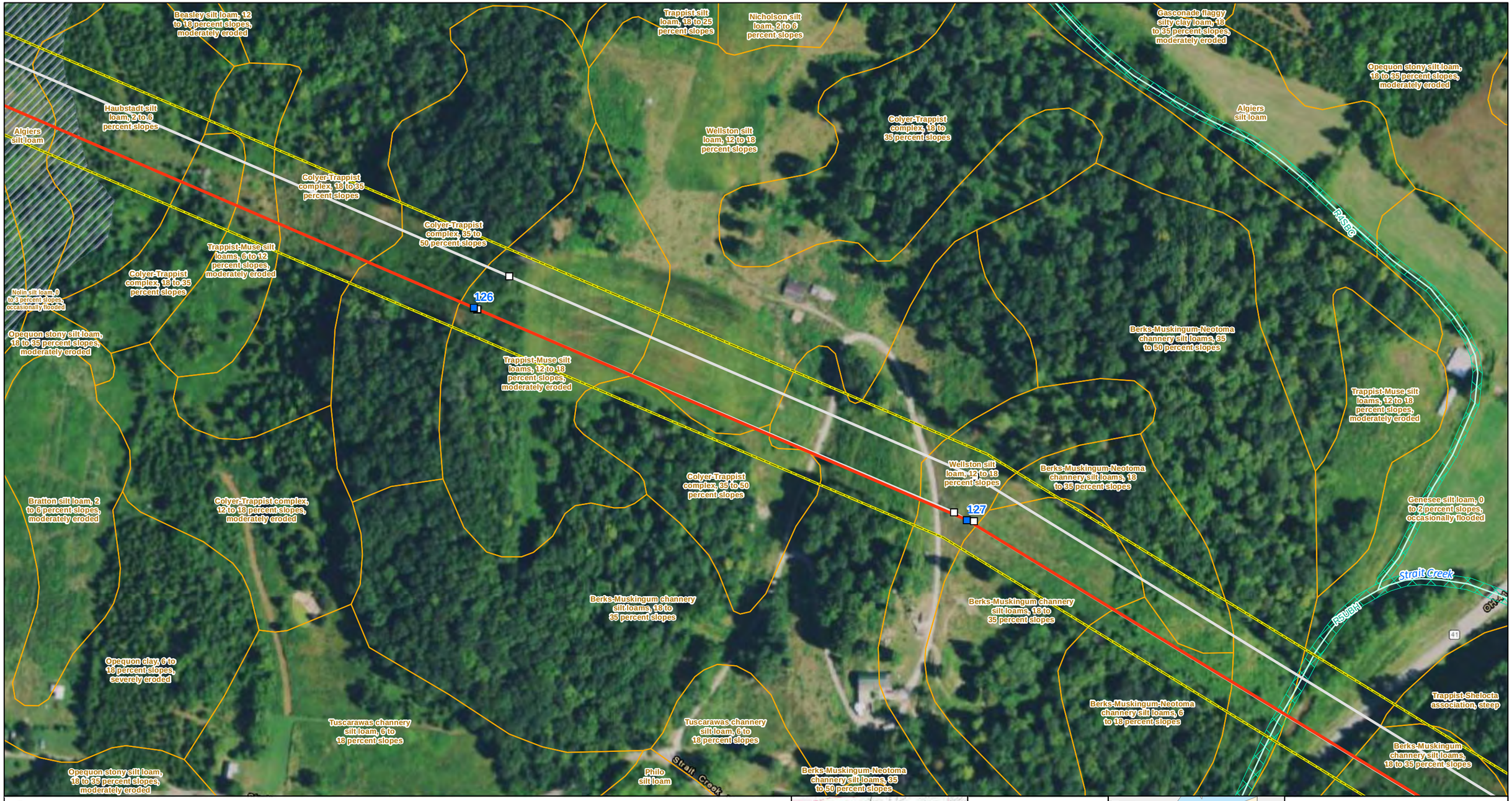
May 05, 2021



Figure 2-30
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-31
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-32
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

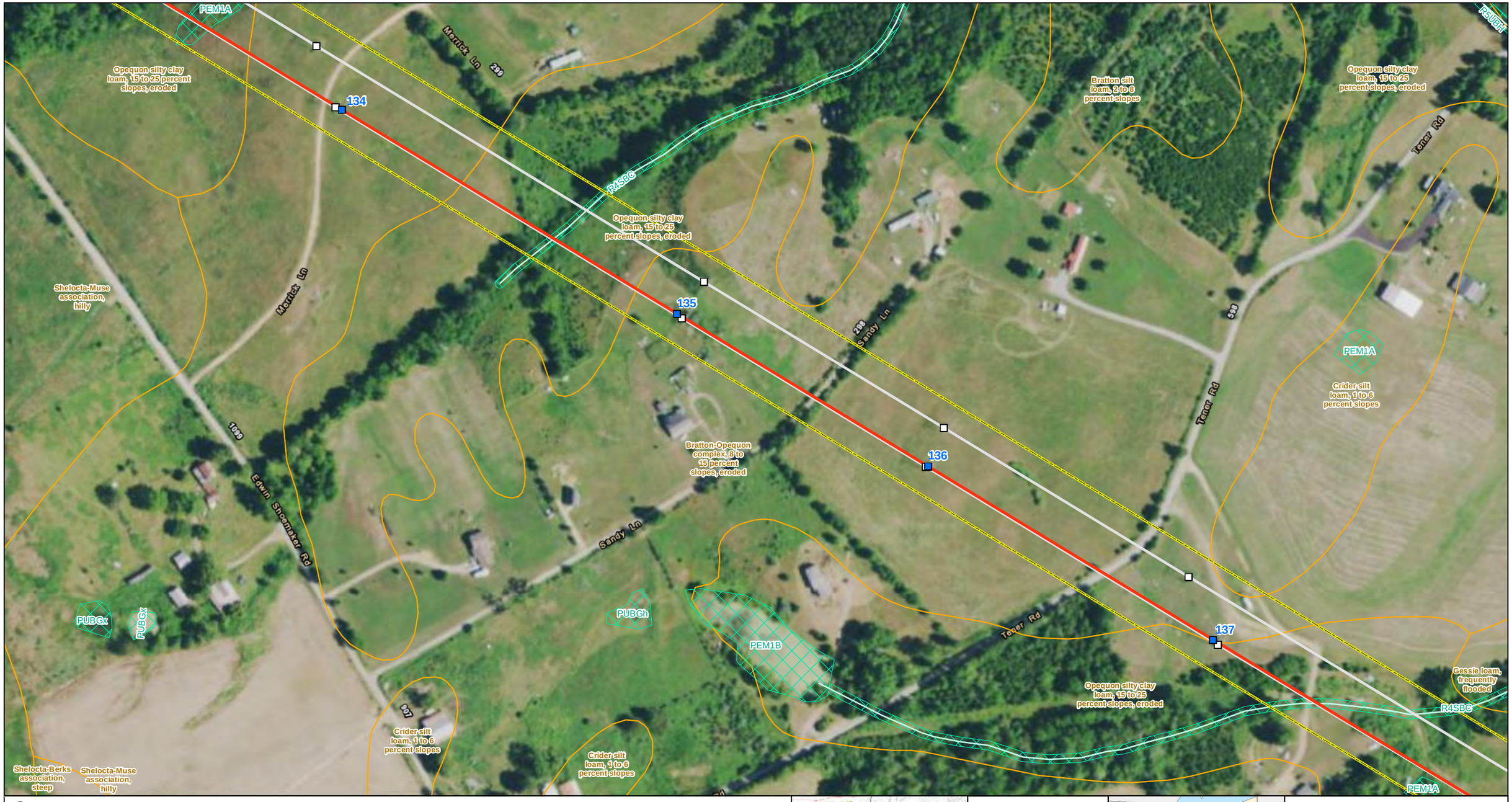
May 05, 2021



Figure 2-33
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

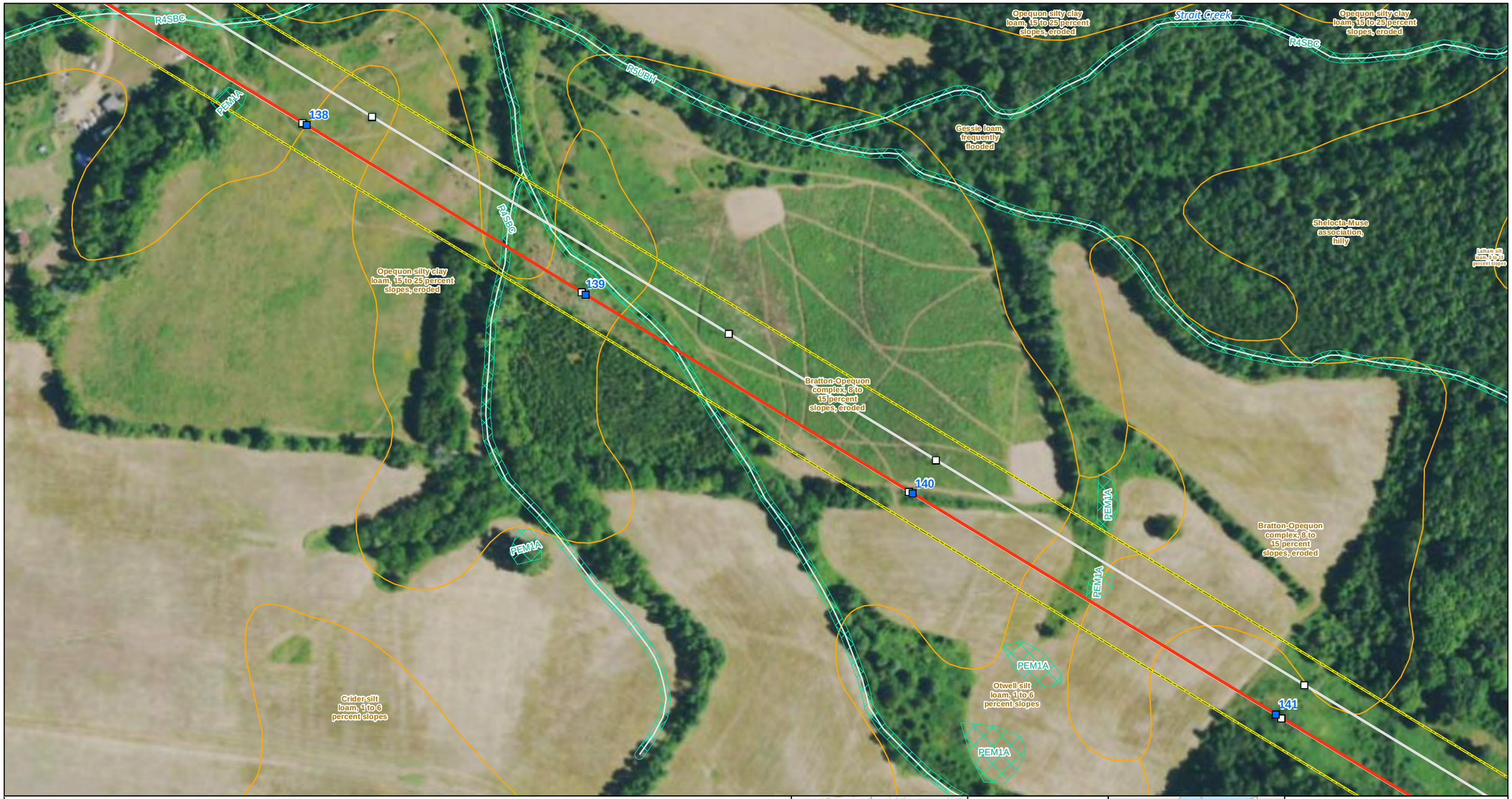
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Figure 2-34
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

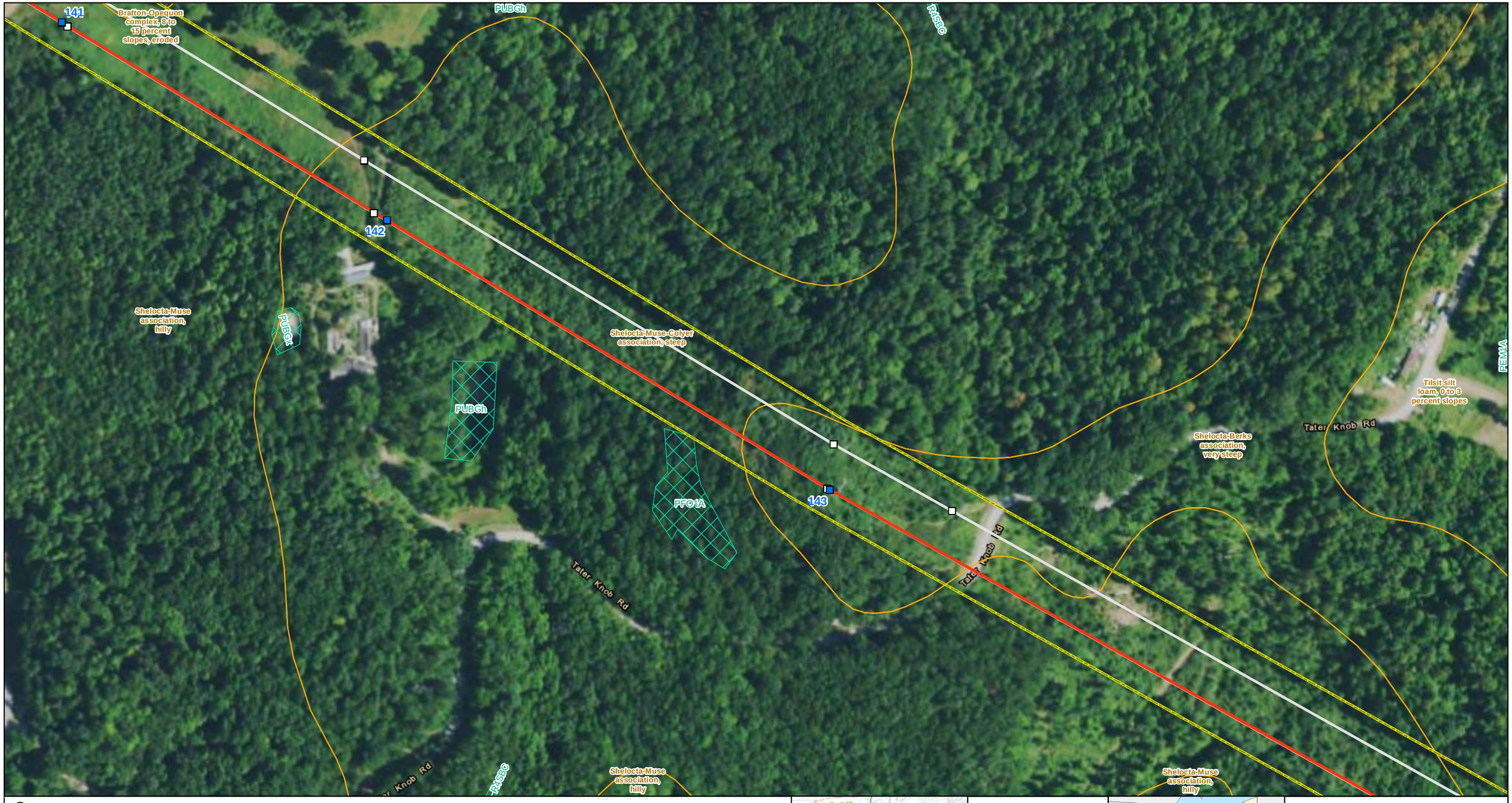
May 05, 2021



Figure 2-35
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-36
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-37
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

148
149
150
PFO1A
Shelocta-Muse-Colyer association, steep
Shelocta-Berks association, very steep
Shelocta-Muse association, hilly
Skidmore gravelly loam, occasionally flooded
Omulga silt loam, 1 to 6 percent slopes
Nolin silt loam, 0 to 3 percent slopes, occasionally flooded
R4SBC
R5UBH
Douglas Rd
Bettys Creek Rd
Bettys Creek
1201
Rd

Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-38
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-39
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-40
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

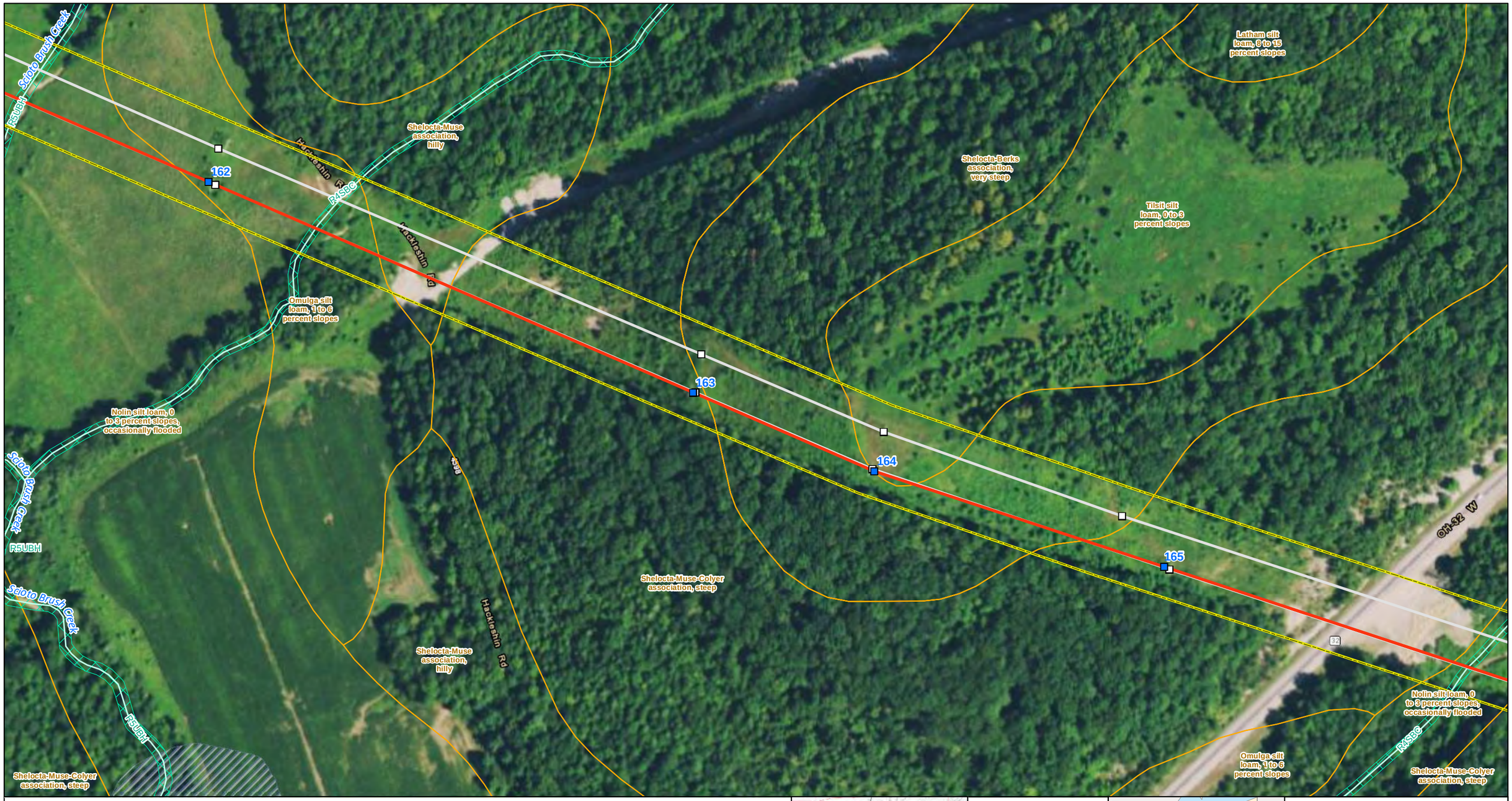
May 05, 2021



Figure 2-41
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-42
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-43
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-44
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

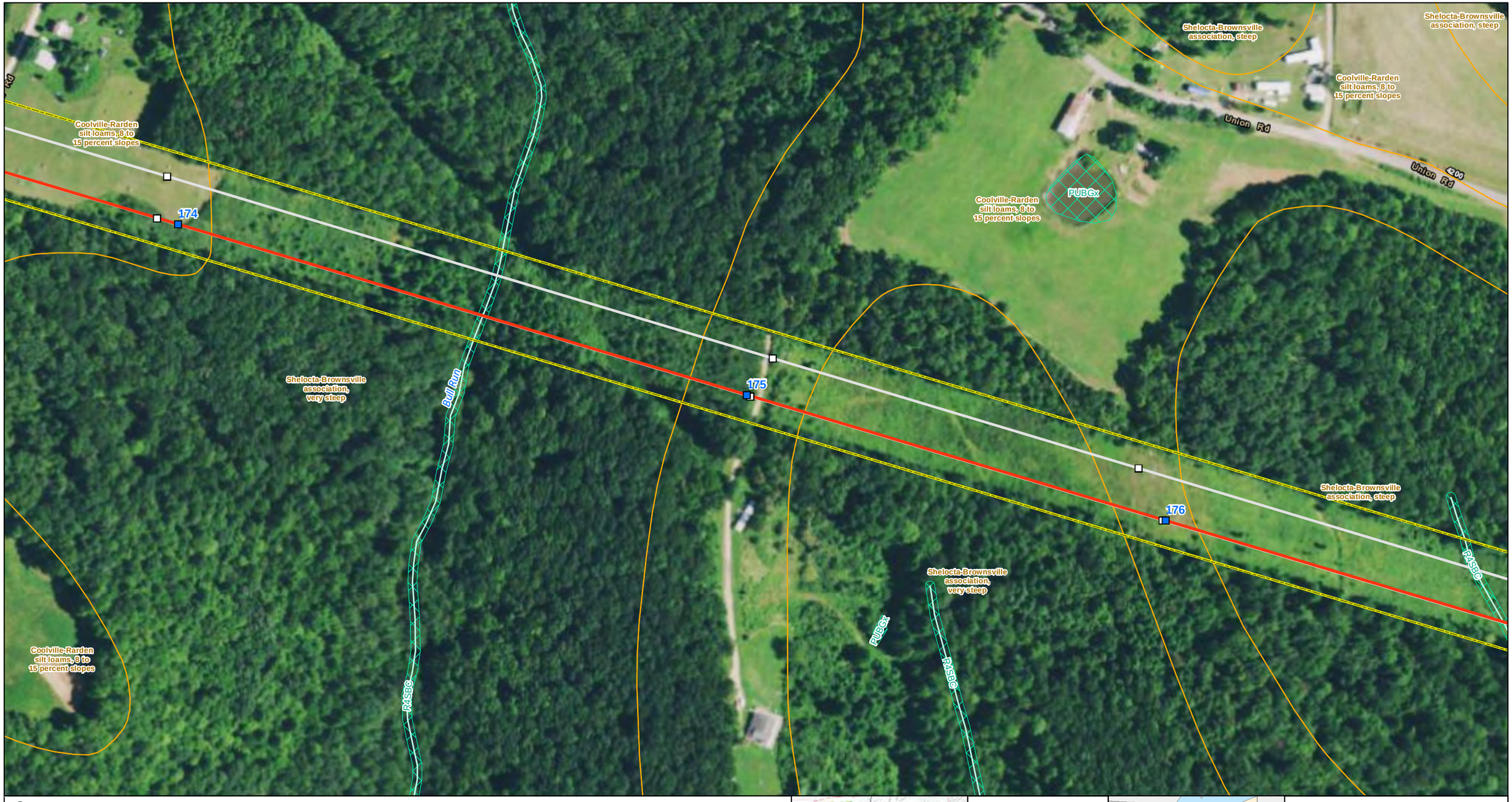
May 05, 2021



Figure 2-45
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

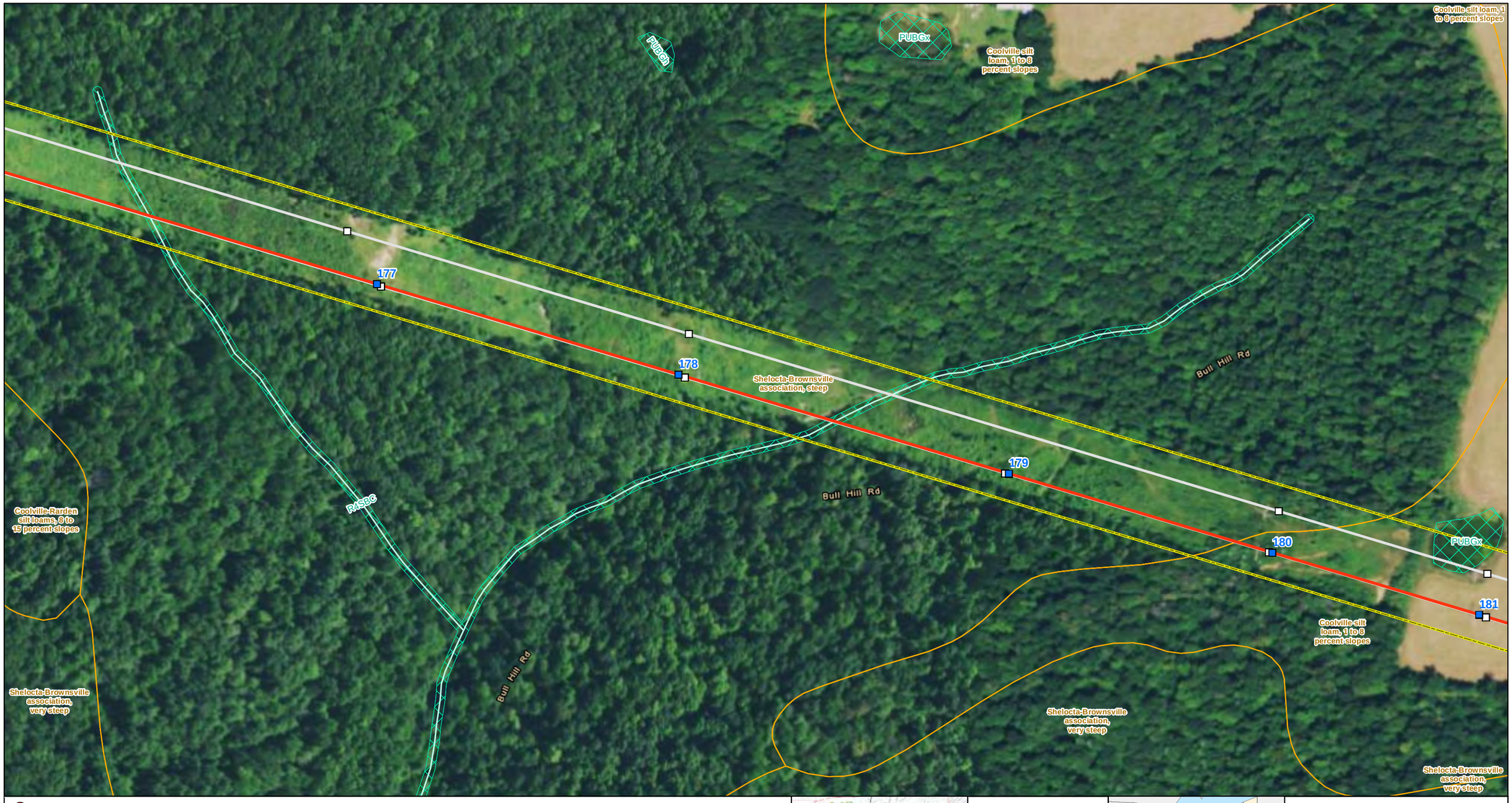
May 05, 2021



Figure 2-46
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

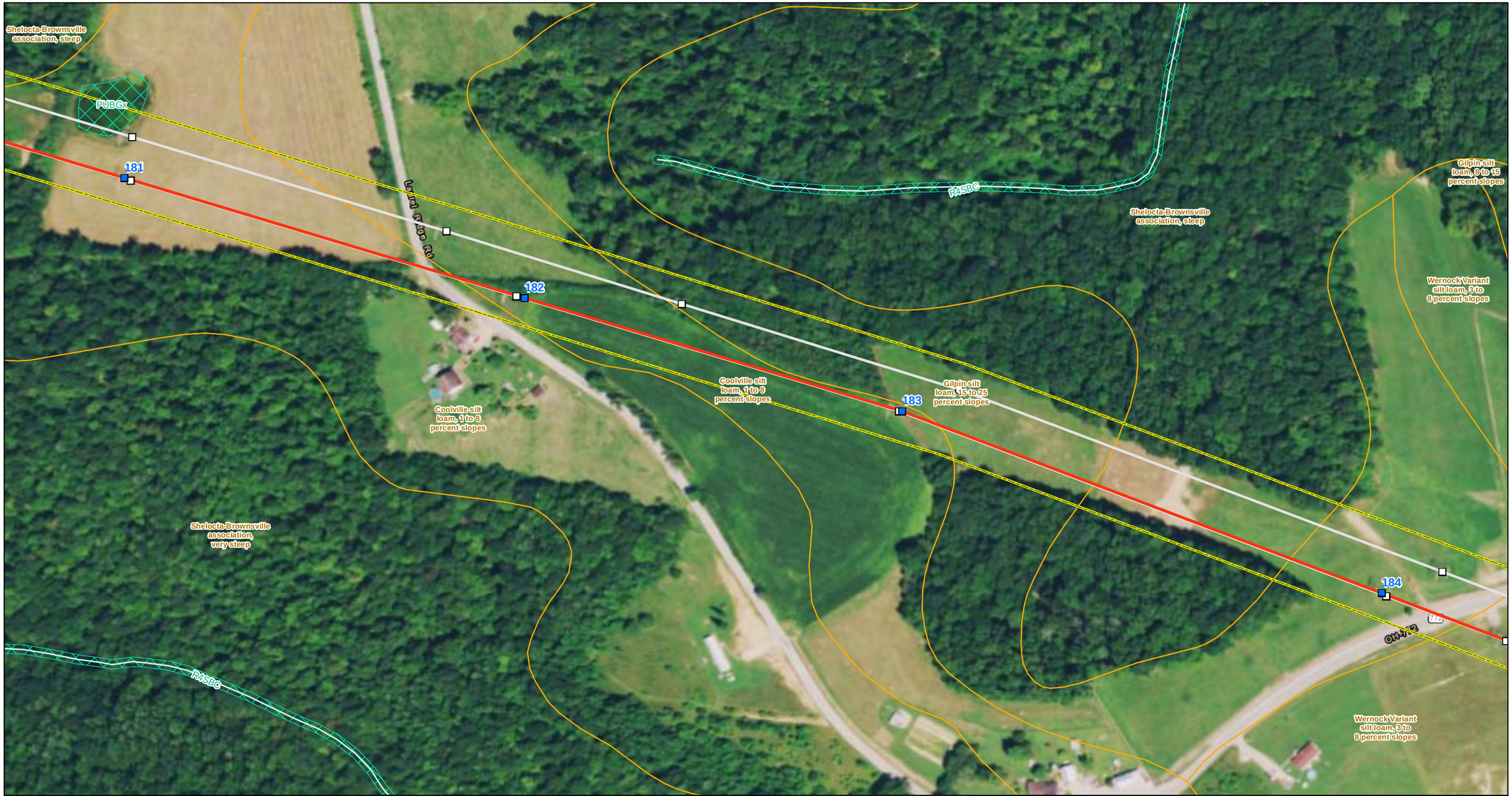
May 05, 2021



Figure 2-47
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

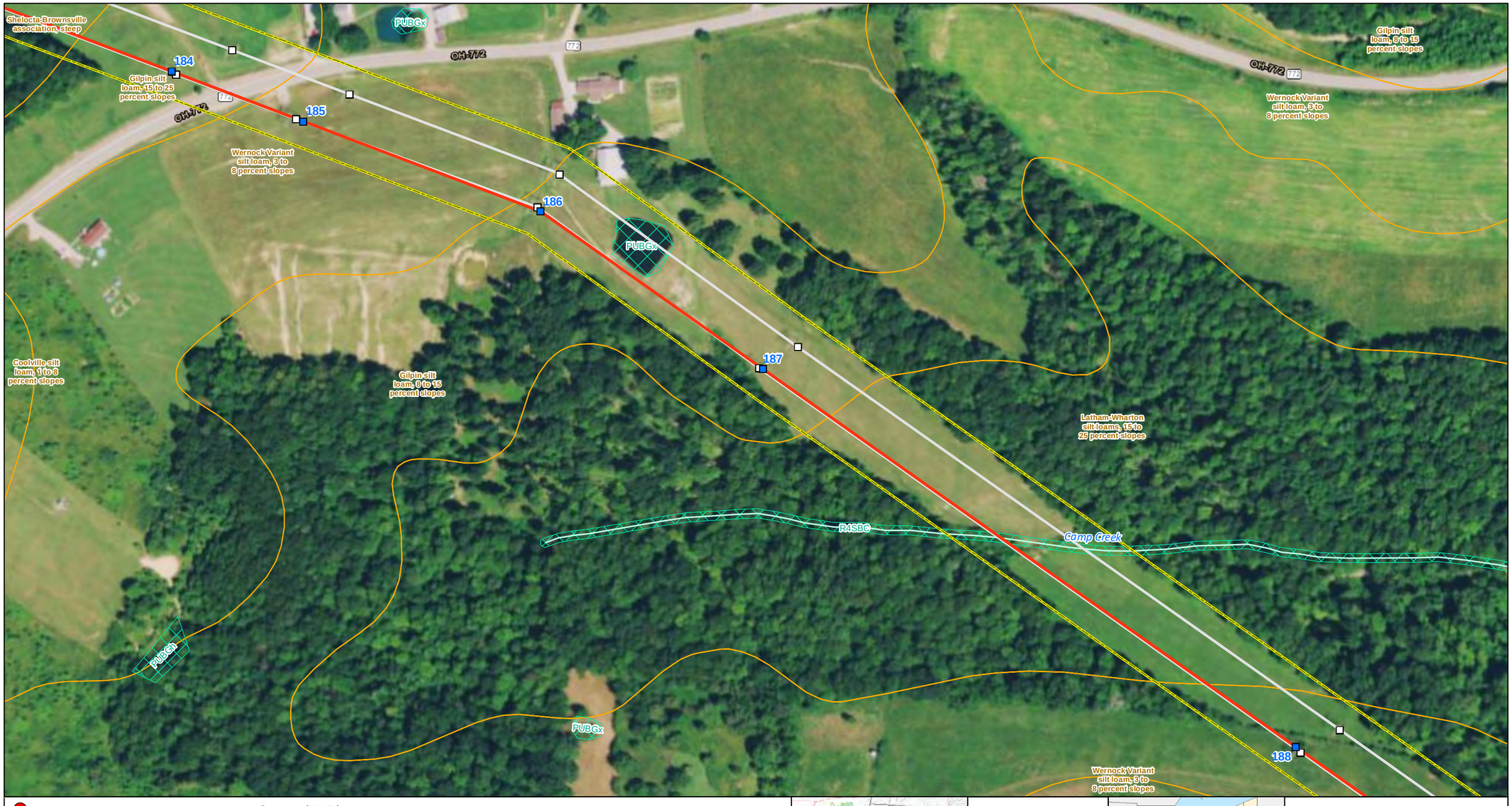
May 05, 2021



Figure 2-48
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

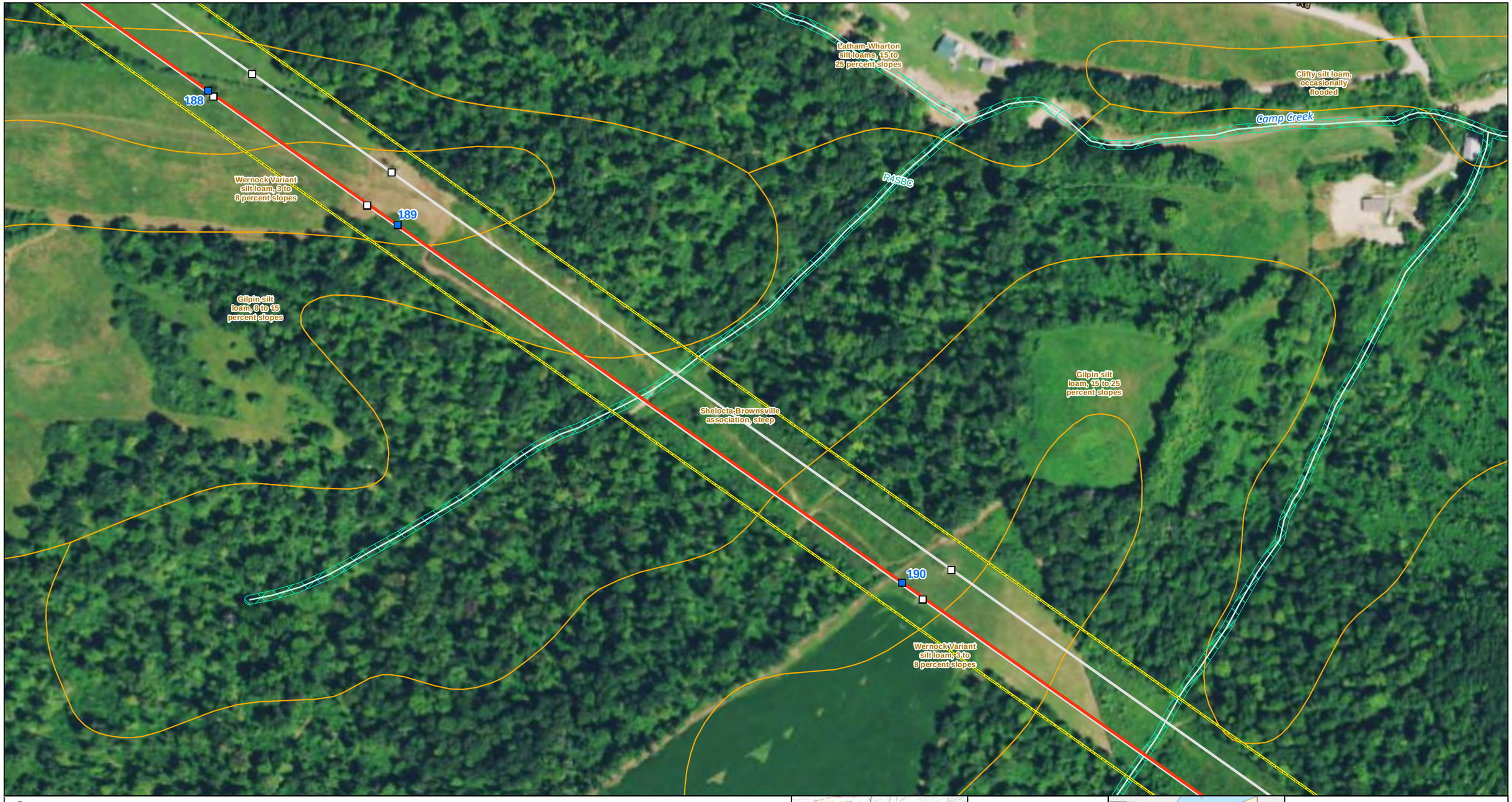
May 05, 2021



Figure 2-49
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-50
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-51
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-52
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-53
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-54
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-55
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

206
207
208
PUB Ch
PUB Ch
Shelocta-Latham association, steep
Coolville-Blairton association, rolling
R4SBC
R4SBC
Drake Run
Left Fork Rd
Left Fork Rd
Left Fork Camp Creek
Tilsit silt loam, 0 to 3 percent slopes
R2UBH
Cliffy silt loam, occasionally flooded
Shelocta-Latham association, steep
Coolville silt loam, 8 to 15 percent slopes

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-56
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

R2UBH

Clifty silt loam, occasionally flooded

Coolville silt loam, 8 to 15 percent slopes

Coolville silt loam, 8 to 15 percent slopes

R4SBC

Clifty silt loam, occasionally flooded

209

210

211

212

Shelocta-Latham association, steep

Rock Run

Coolville-Blairton association, rolling

Rarden silt loam, 8 to 15 percent slopes

Coolville silt loam, 1 to 8 percent slopes

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-57
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

212
213
214
215
Shelocta-Latham association, steep
Coolville-Blairton association, rolling
Coolville silt loam, 1 to 8 percent slopes
Rarden silt loam, 8 to 15 percent slopes
RASBC

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-58
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-59
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

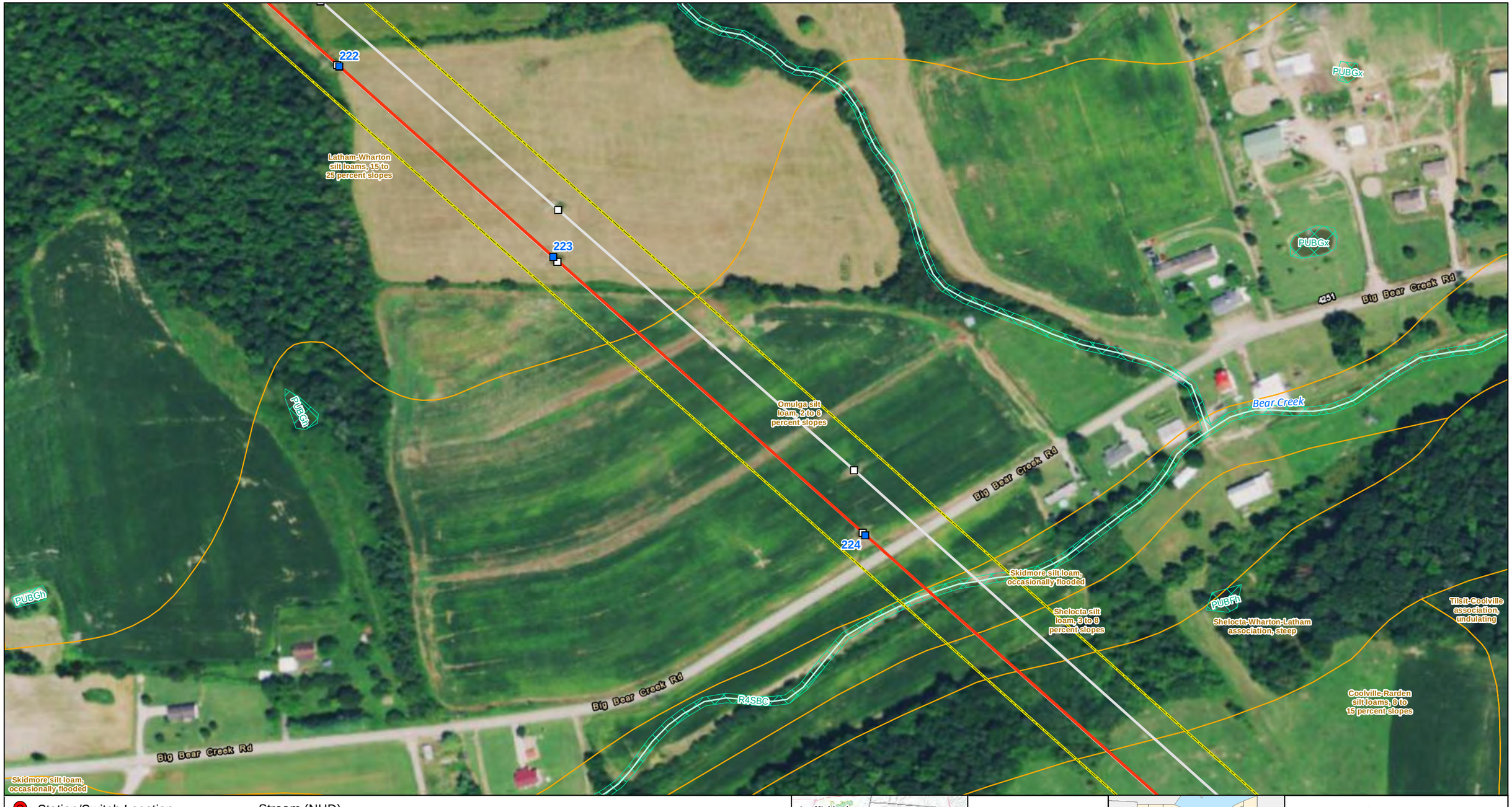
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Figure 2-60
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-61
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

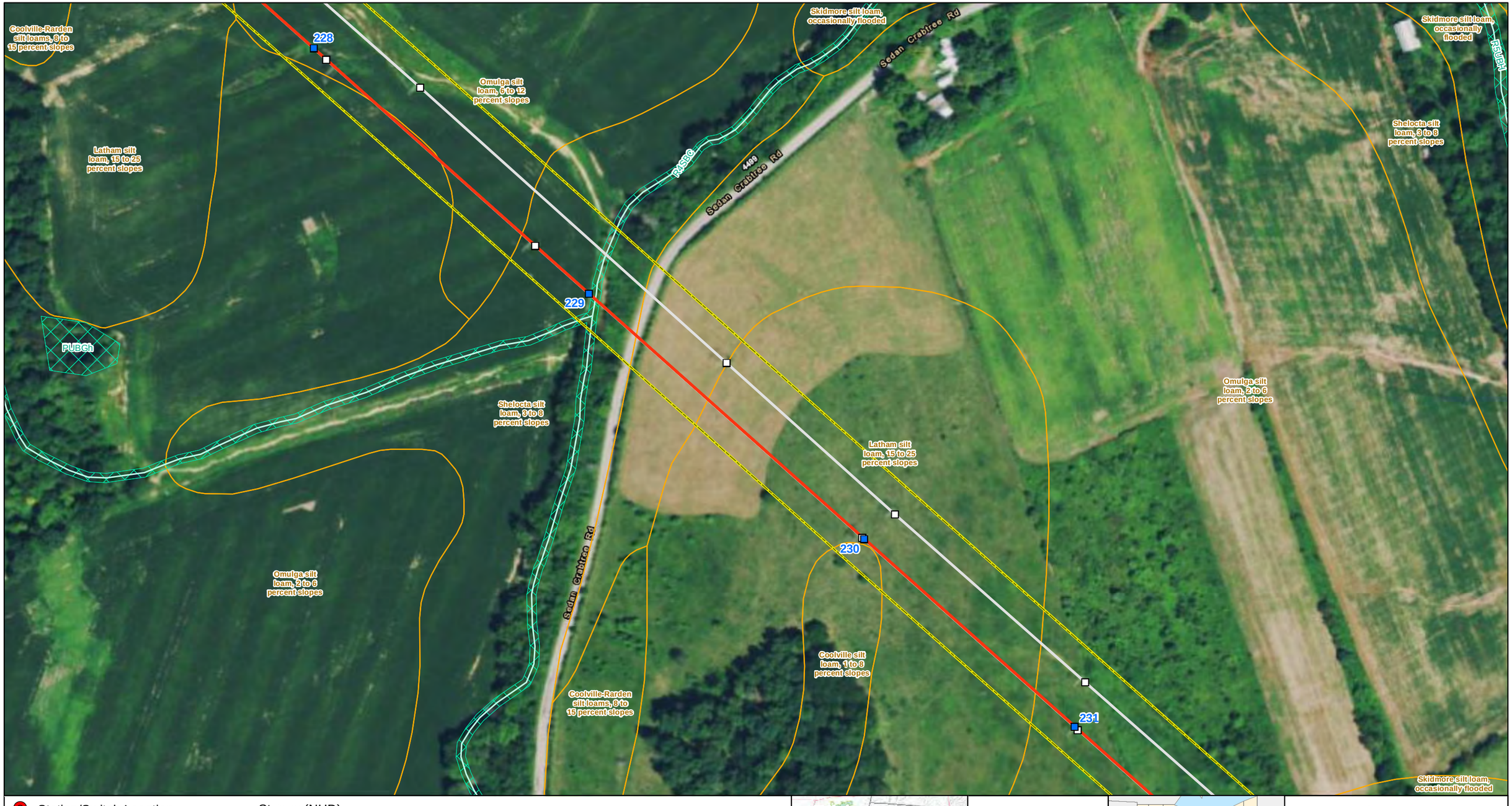
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Figure 2-62
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-63
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-64
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

Latham silt loam, 15 to 25 percent slopes
Monongahela silt loam, 8 to 15 percent slopes, eroded
Shelocta silt loam, 3 to 8 percent slopes
Latham silt loam, 15 to 25 percent slopes
Coolville-Rarden silt loams, 8 to 15 percent slopes
235
Hughes Rd
R4SBC
R5UBH
Skidmore silt loam, occasionally flooded
Bear Creek
Shelocta silt loam, 3 to 8 percent slopes
Latham silt loam, 15 to 25 percent slopes
Hughes Rd
236
Shelocta-Brownsville association, steep
237
Coolville-Rarden silt loams, 8 to 15 percent slopes
PUBCh
Latham silt loam, 15 to 25 percent slopes
Shelocta-Brownsville association, steep
Latham silt loam, 15 to 25 percent slopes

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-65
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-66
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

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Figure 2-67
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-68
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-69
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-70
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-71
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor

Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-72
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

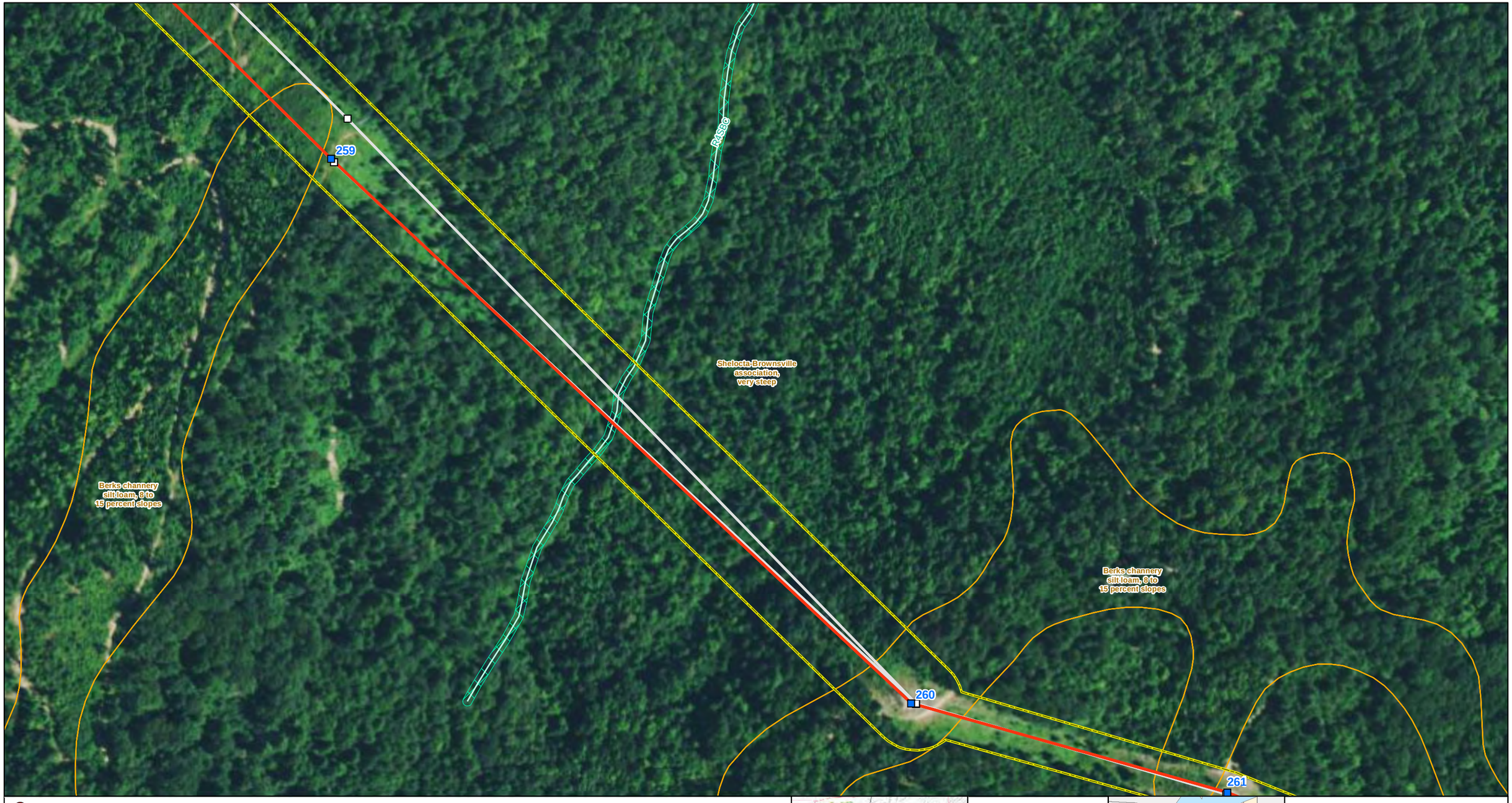
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Figure 2-73
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-74
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-75
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

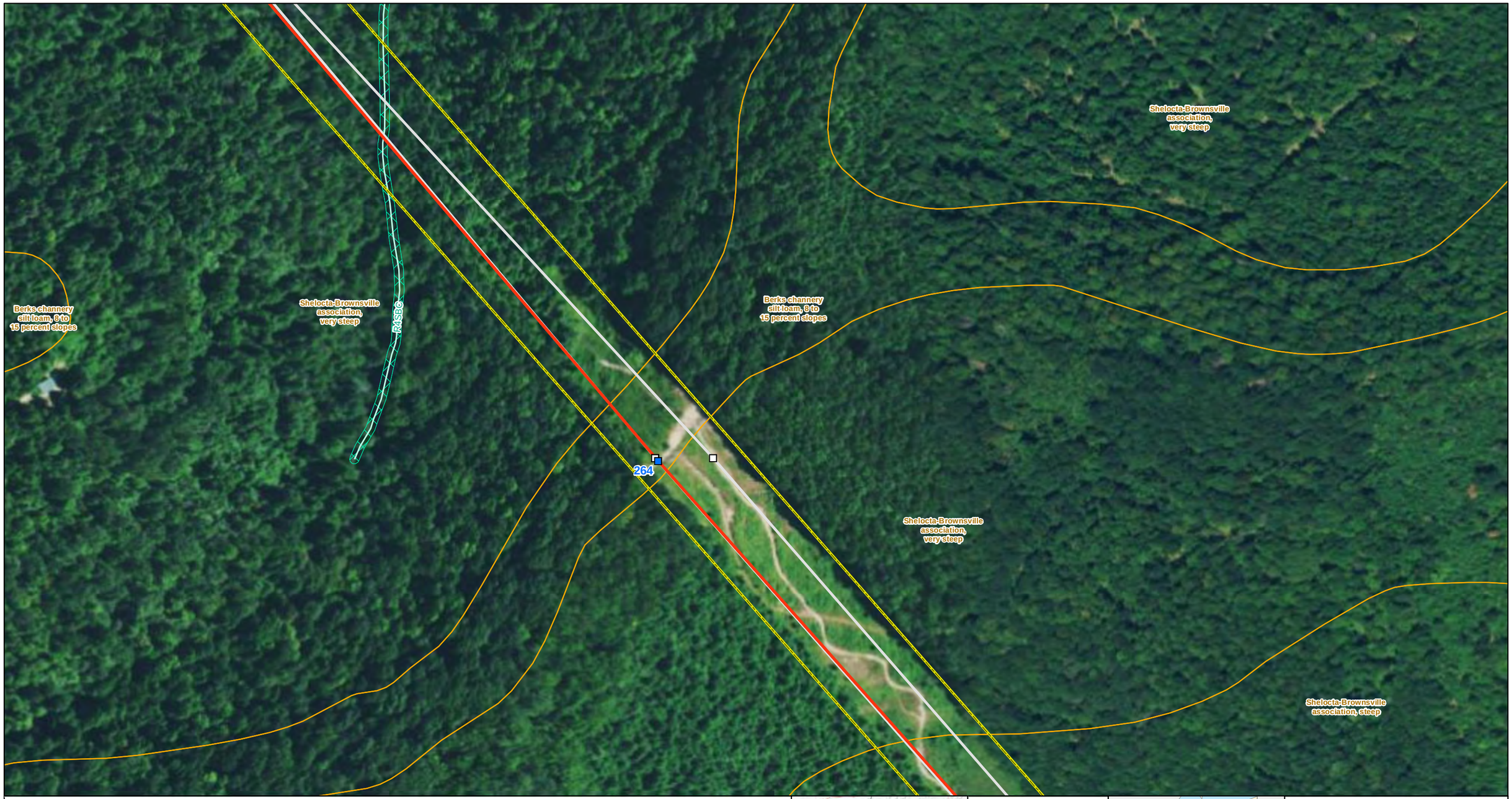
May 05, 2021



Figure 2-76
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

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Figure 2-77
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-78
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-79
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-80
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

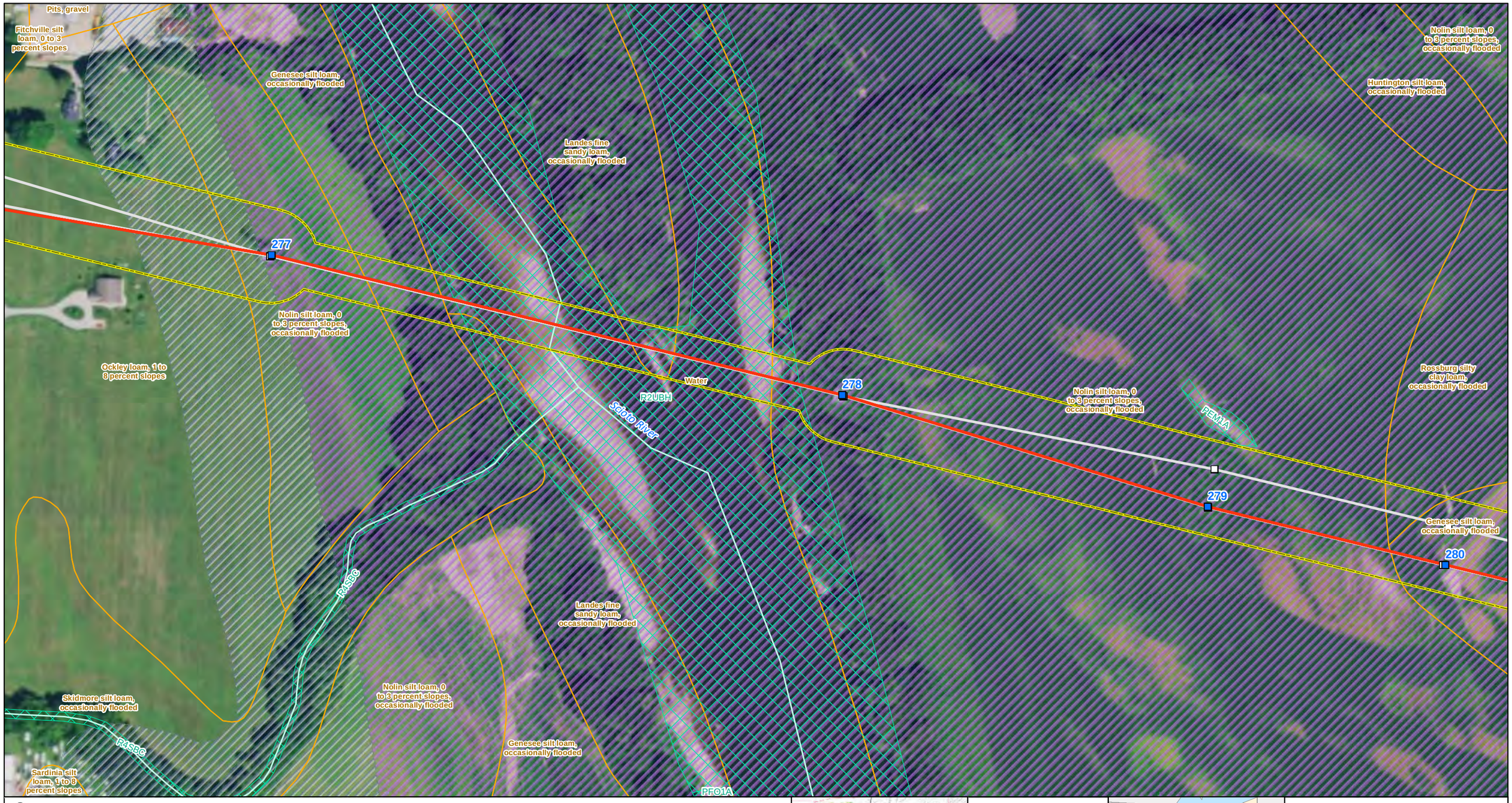
May 05, 2021



Figure 2-81
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
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FIPS 3402 (US Feet)
Datum: NAD 1983

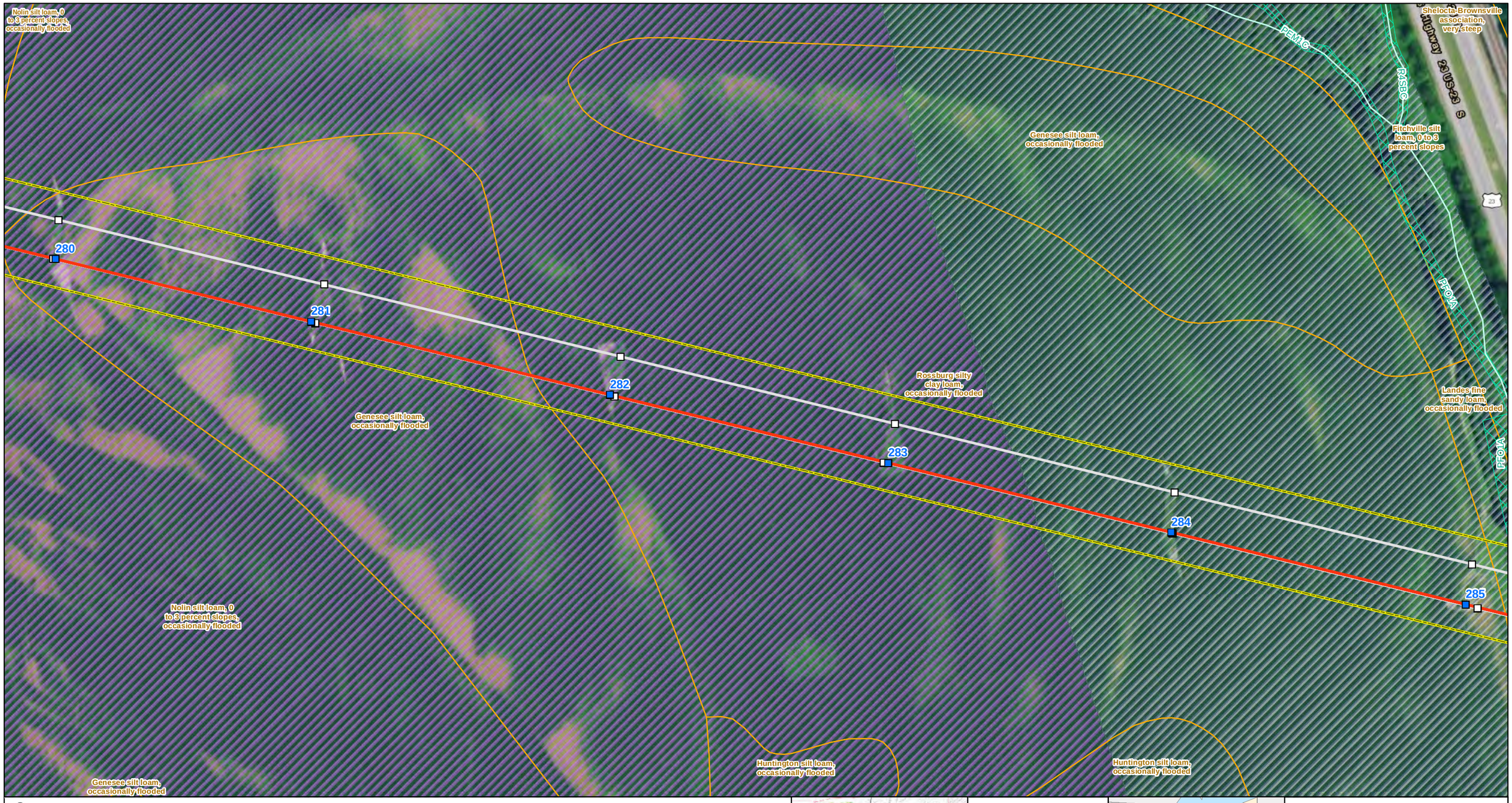
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Figure 2-82
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
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Datum: NAD 1983

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Figure 2-83
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

South Lucasville Station
1 (LS)
285
286
287
PFO1A
Rossburg silty clay loam, occasionally flooded
Landes fine sandy loam, occasionally flooded
Fitchville silt loam, 0 to 3 percent slopes
Elkinsville silt loam, 25 to 40 percent slopes
Huntington silt loam, occasionally flooded
Shelocta-Brownsville association, very steep
Omulga silt loam, 6 to 12 percent slopes
Omulga silt loam, 2 to 6 percent slopes
Shelocta-Wharton-Latham association, steep
PUBGh Water
Alford silt loam, 10 to 25 percent slopes
Haymond silt loam, occasionally flooded
Cook Rd
PEMA
US Highway 23
US-23 N
US-23 S
RASBC

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

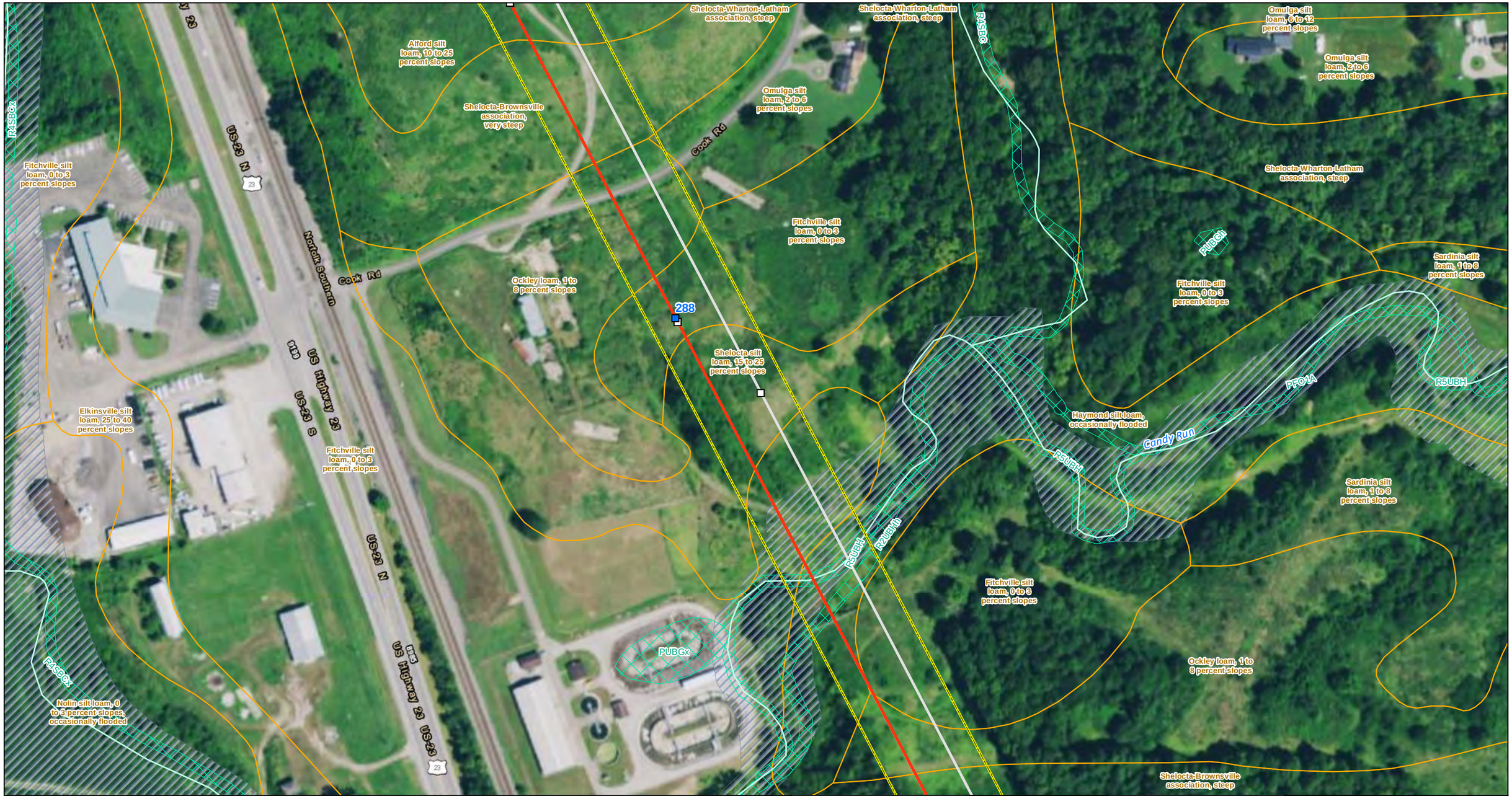
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Figure 2-84
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-85
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-86
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-87
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
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Datum: NAD 1983

May 05, 2021



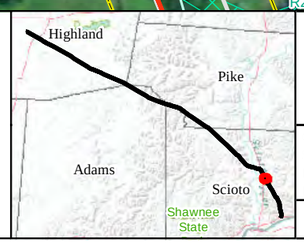
Figure 2-88
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

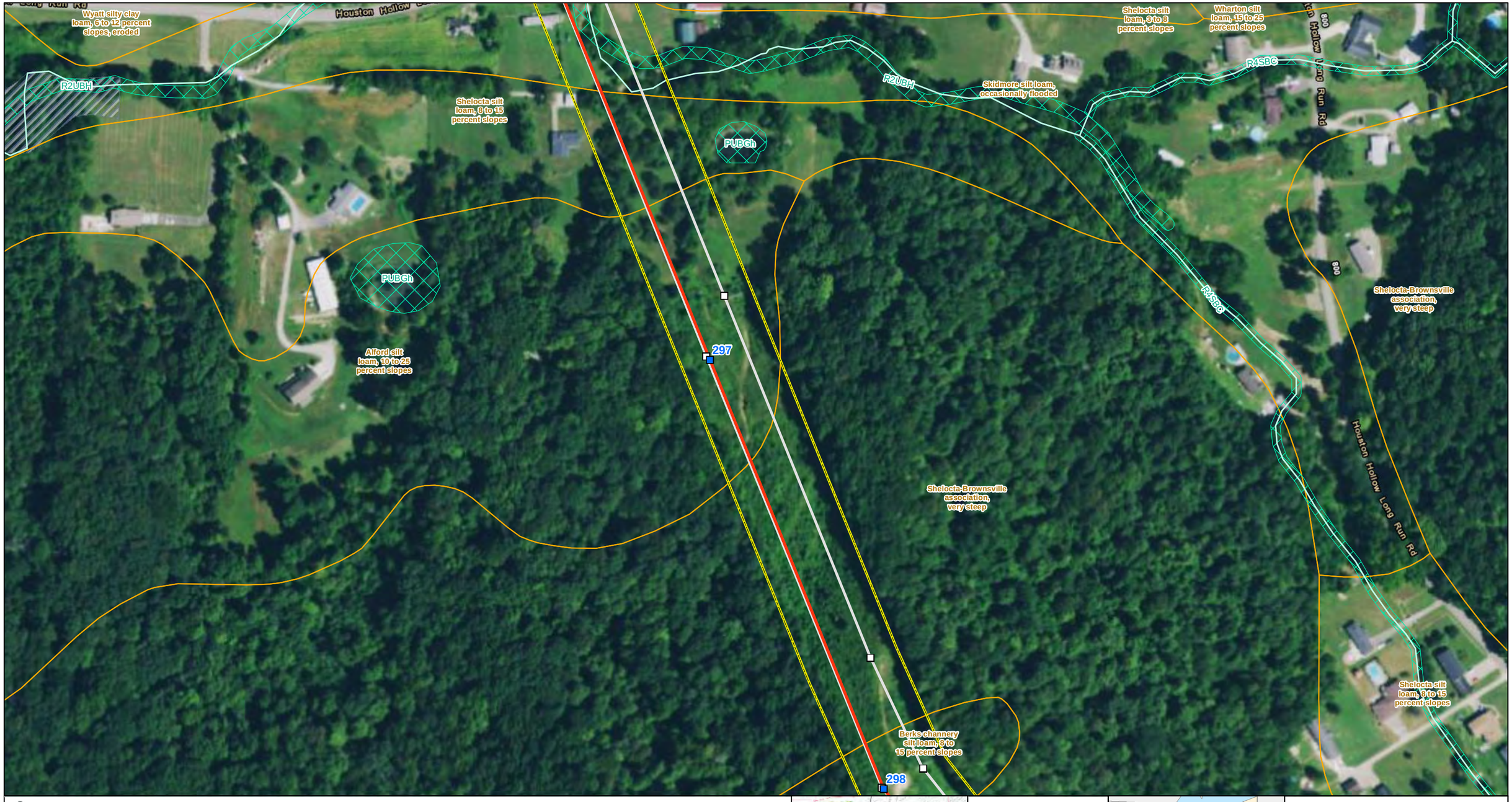
May 05, 2021



Figure 2-89
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-90
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

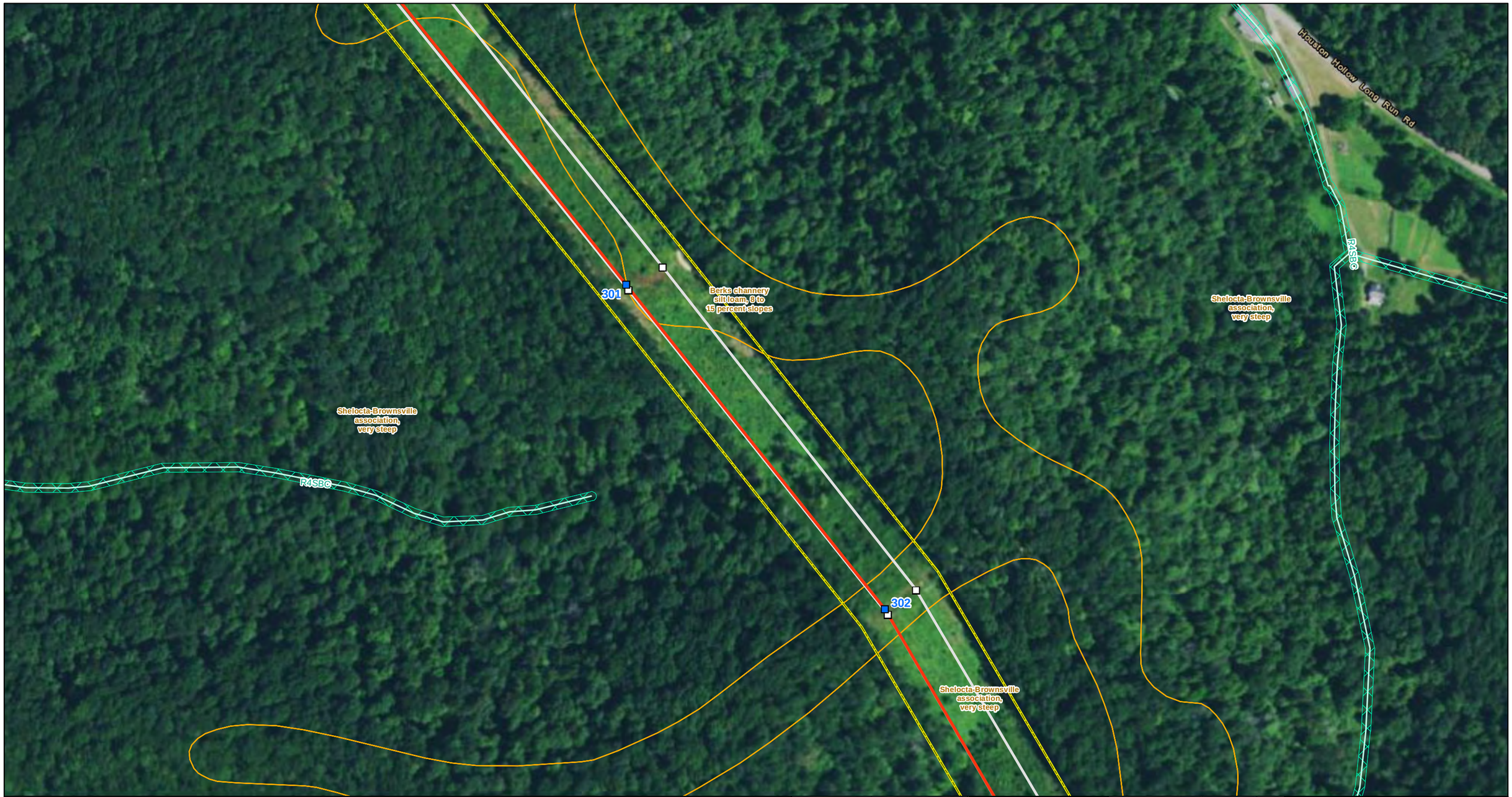
May 05, 2021



Figure 2-91
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-92
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-93
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-94
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-95
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-96
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

R4SBC
R4SBC
R4SBC
Skidmore silt loam, occasionally flooded
310
311
Shelocta-Brownsville association, very steep
Latham-Gilpin association, hilly
Tilsit-Coolville association, undulating
Latham-Gilpin association, hilly
Shelocta-Brownsville association, very steep
Shelocta-Brownsville association, very steep

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-97
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-98
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-99
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



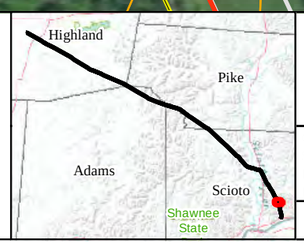
Figure 2-100
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-101
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-102
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-103
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor

Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

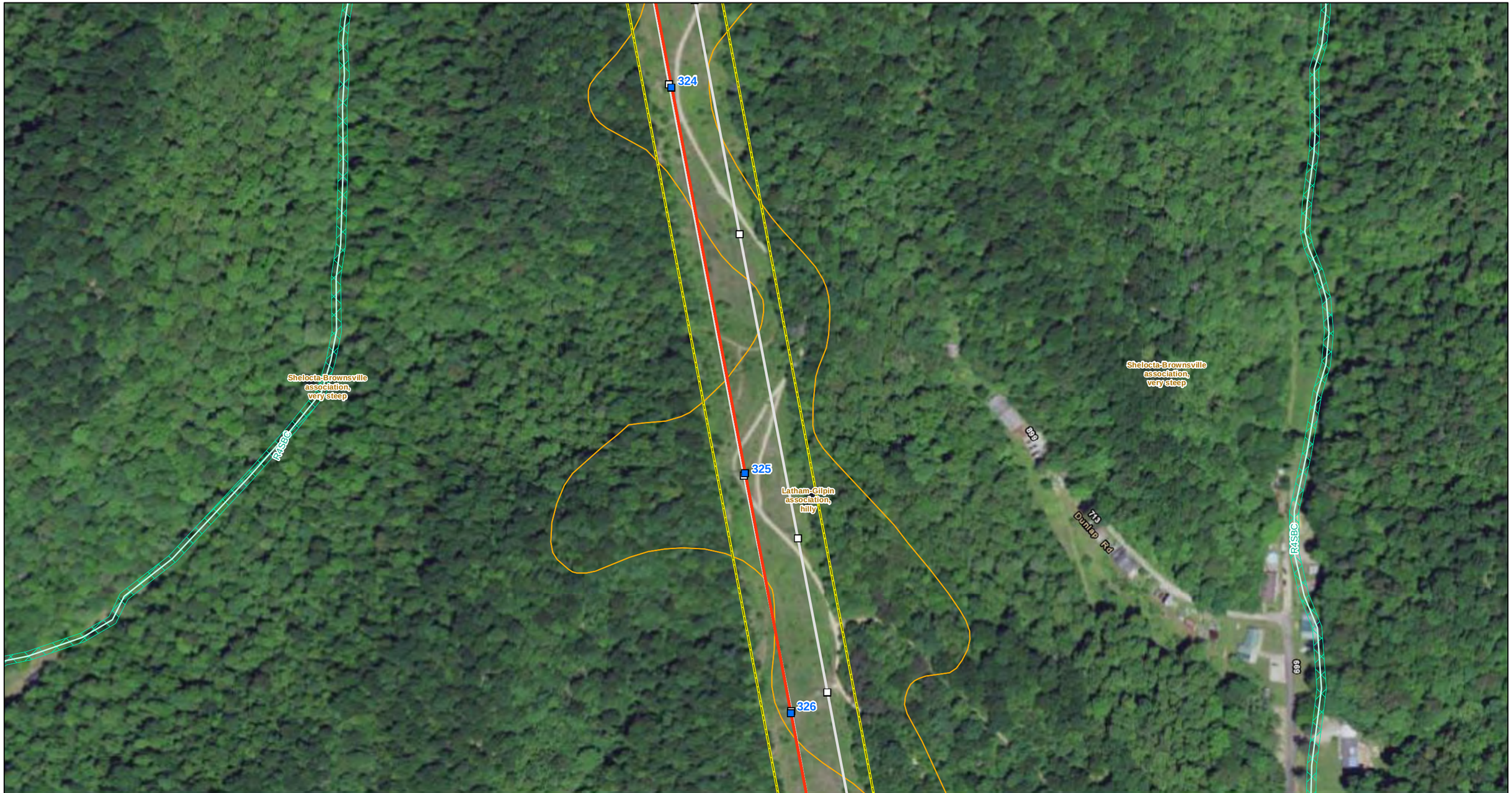
May 05, 2021



Figure 2-104
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-105
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-106
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

329
330
331
Shelocta-Brownsville association, very steep
Latham-Gilpin association, hilly
Shelocta silt loam, 8 to 15 percent slopes
Shelocta-Brownsville association, very steep
Latham-Gilpin association, hilly
Dunlap Rd
Dunlap Rd
Shelocta silt loam, 3 to 8 percent slopes
Shelocta-Brownsville association, very steep
Shelocta silt loam, 3 to 8 percent slopes
Skidmore silt loam, occasionally flooded
Munn Run
Shelocta-Brownsville association, very steep
Terrace
Ray St
Dale St
May St
Valley St
4337
4324
1801
1813
4399
1799
1798
999
499
R4SEG
R2UBHX

Station/Switch Location
Proposed Structures
Existing Structures
Proposed Transmission Line
Existing Transmission Lines
Environmental Survey Corridor
Stream (NHD)
Wetland (NWI)
NRCS Soil Map Unit
100-Year Floodplain
Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-107
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

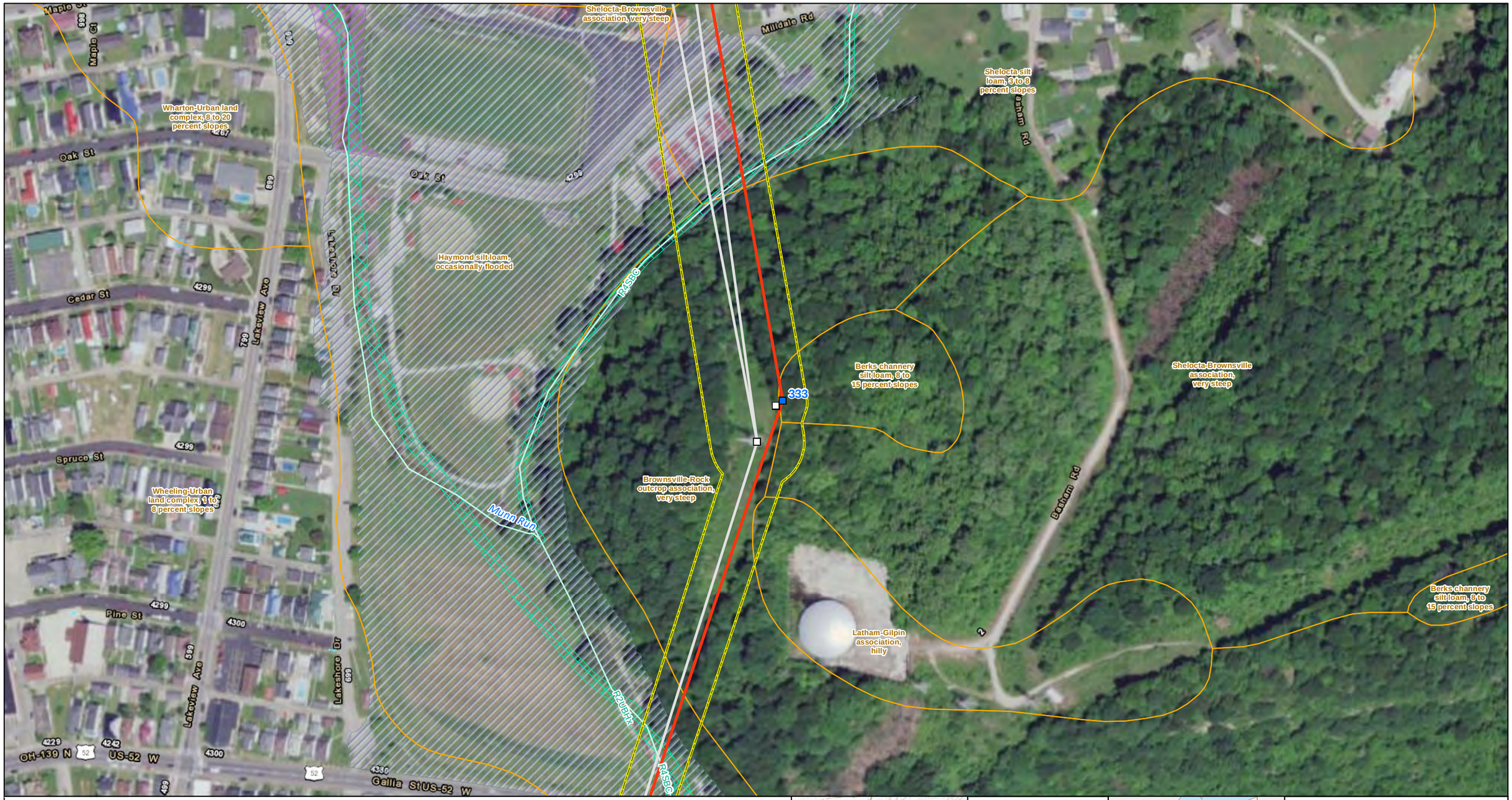
May 05, 2021



Figure 2-108
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 05, 2021



Figure 2-109
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Proposed Transmission Line
- Existing Transmission Lines
- Environmental Survey Corridor
- Stream (NHD)
- Wetland (NWI)
- NRCS Soil Map Unit
- 100-Year Floodplain
- Floodway



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

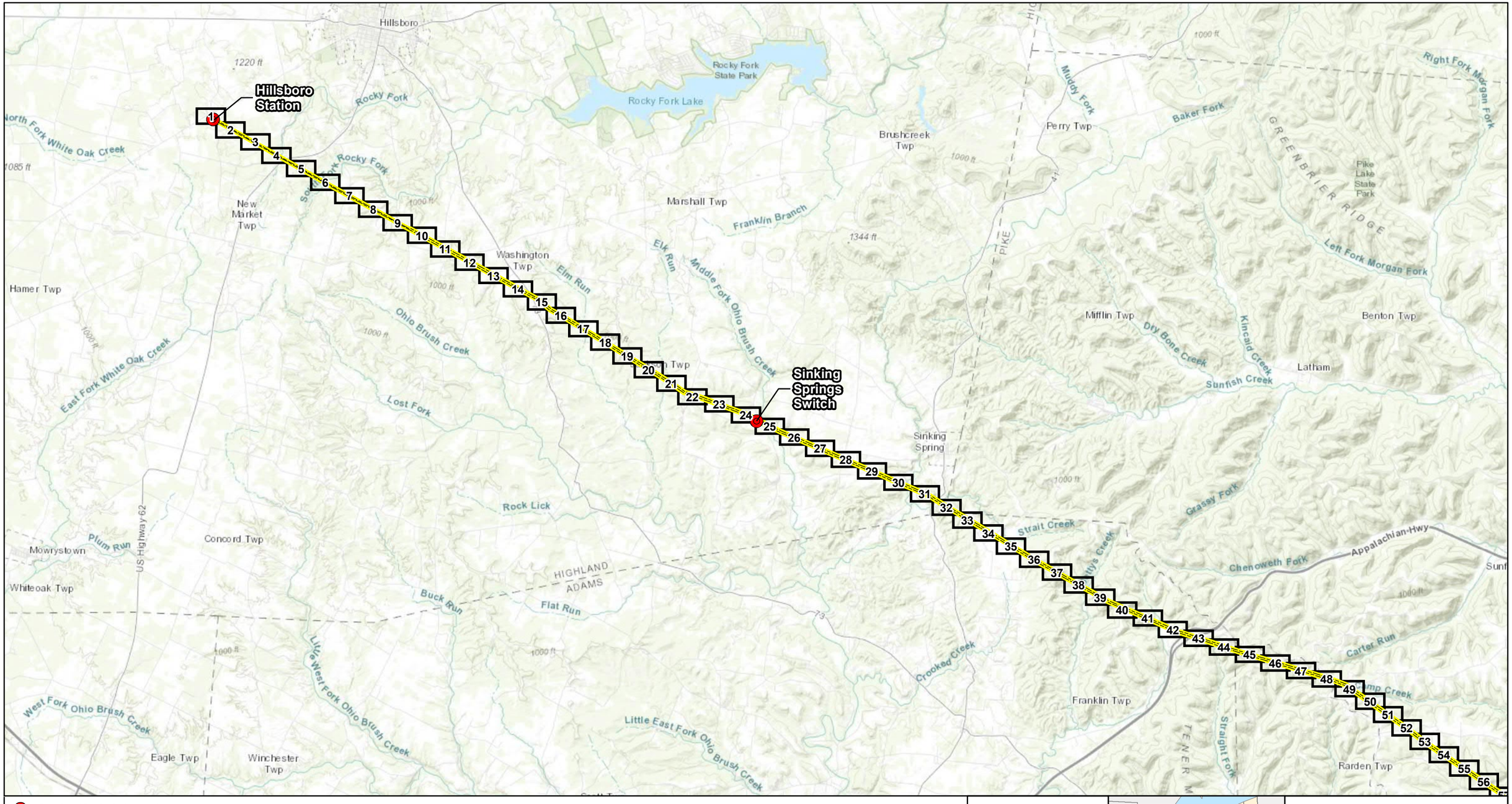
May 05, 2021



Figure 2-110
Soil, NHD, NWI, FEMA Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location

Environmental Survey Corridor

Base Map Source:
ESRI World Topo

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3
Delineated Features Index Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 2 4
Miles



Station/Switch Location

Environmental Survey Corridor

Base Map Source:
ESRI World Topo

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

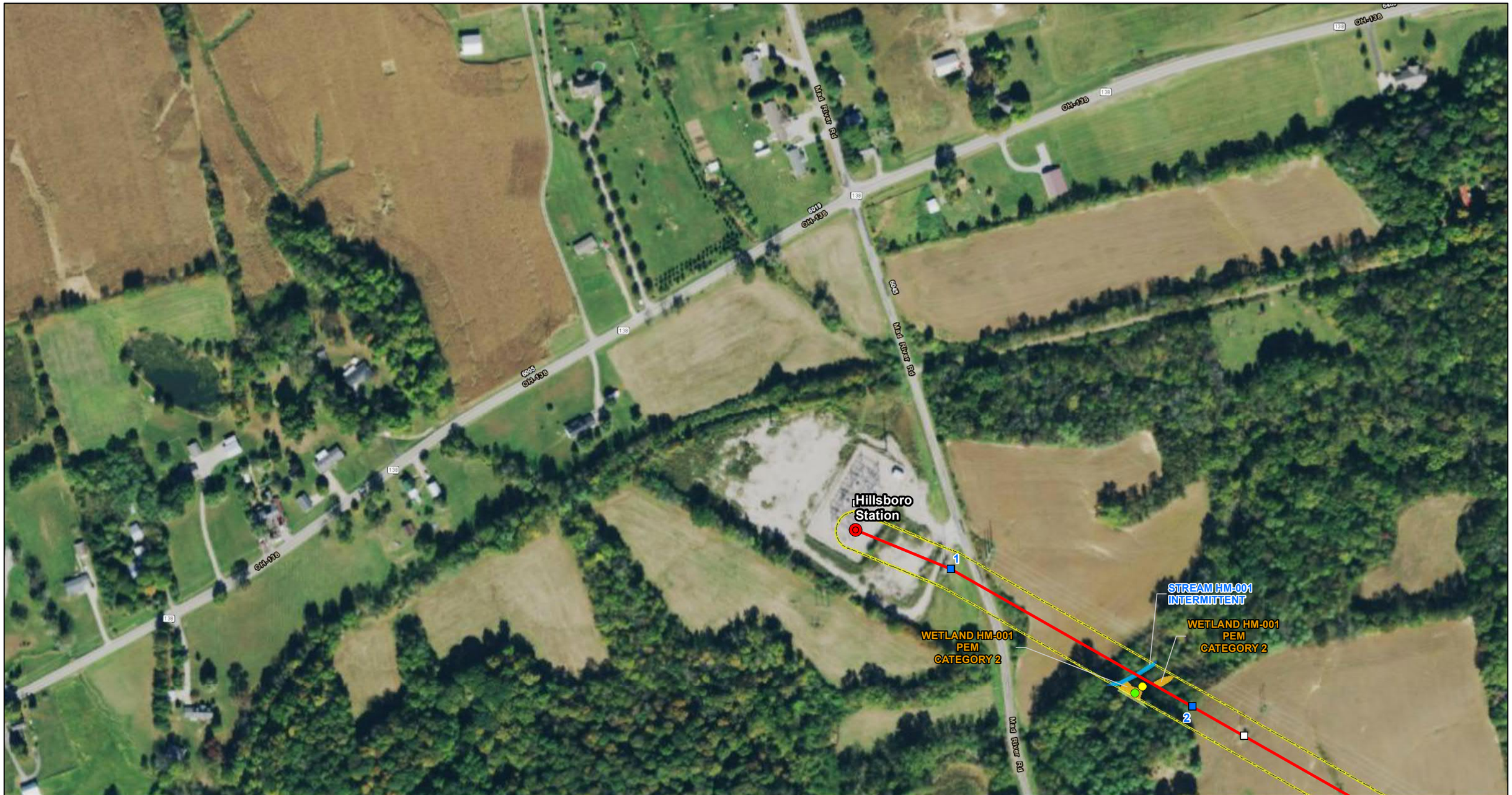
May 07, 2021



Figure 3
Delineated Features Index Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 2 4
Miles


Hillsboro Station
1
2
STREAM HM-001
INTERMITTENT
WETLAND HM-001
PEM
CATEGORY 2
WETLAND HM-001
PEM
CATEGORY 2
OH-138
Mad River Rd
Mad River Rd
Mad River Rd
OH-138
OH-138
OH-138
138
138
138
138
Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor
Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond
Estimated Stream
Estimated Wetland
Estimated Pond
Highland
Pike
Adams
Scioto
Shawnee State
OHIO
Project Location
Highland County
Pike County
Adams County
Scioto County
Base Map Source:
National Agriculture
Imagery Program
Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983
May 07, 2021
Figure 3-1
Delineated Features Map
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project
0
200
400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

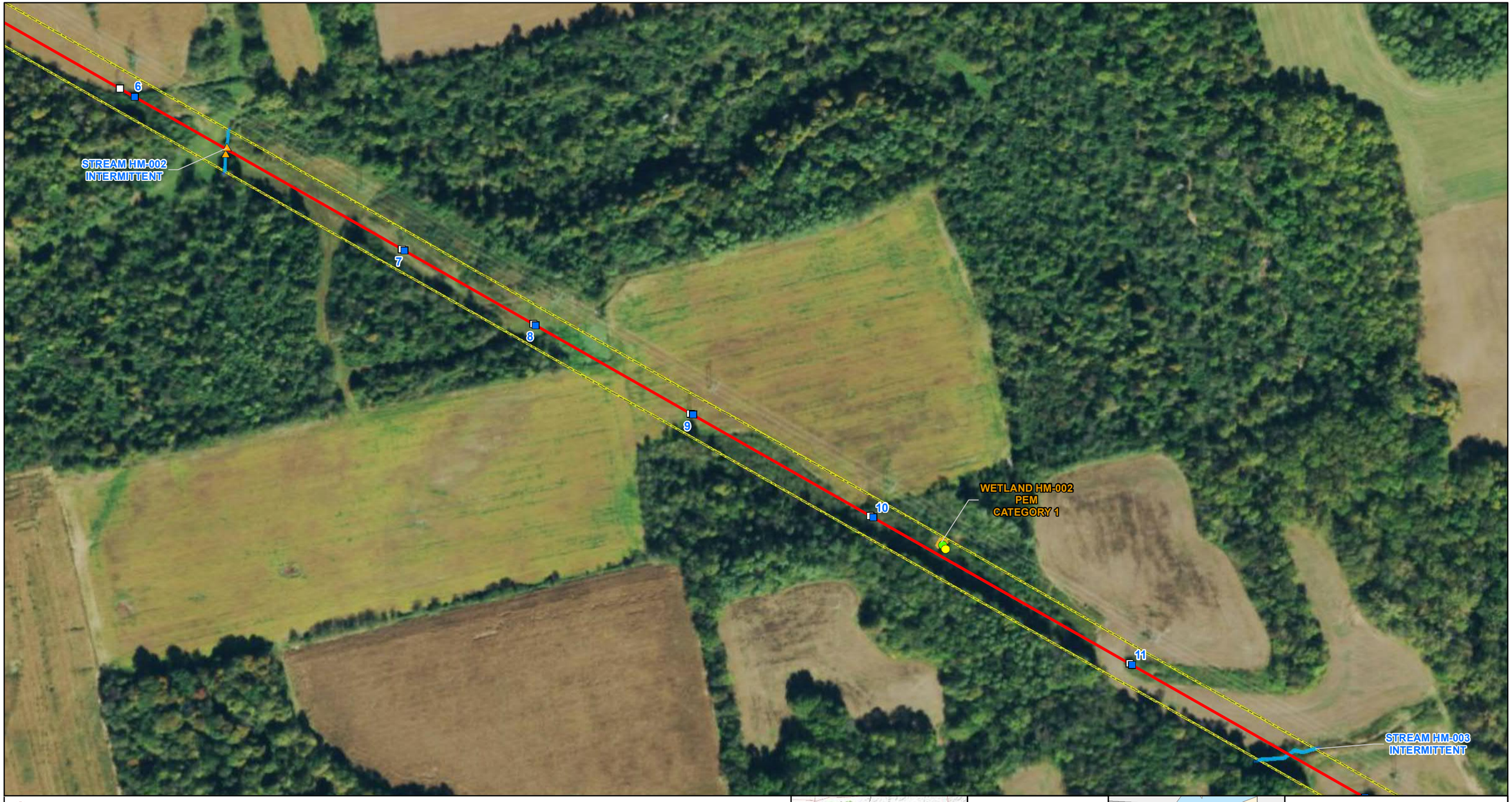
May 07, 2021



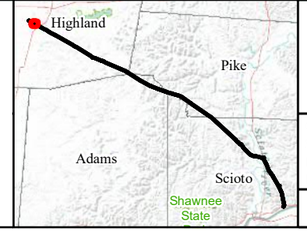
Figure 3-2
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

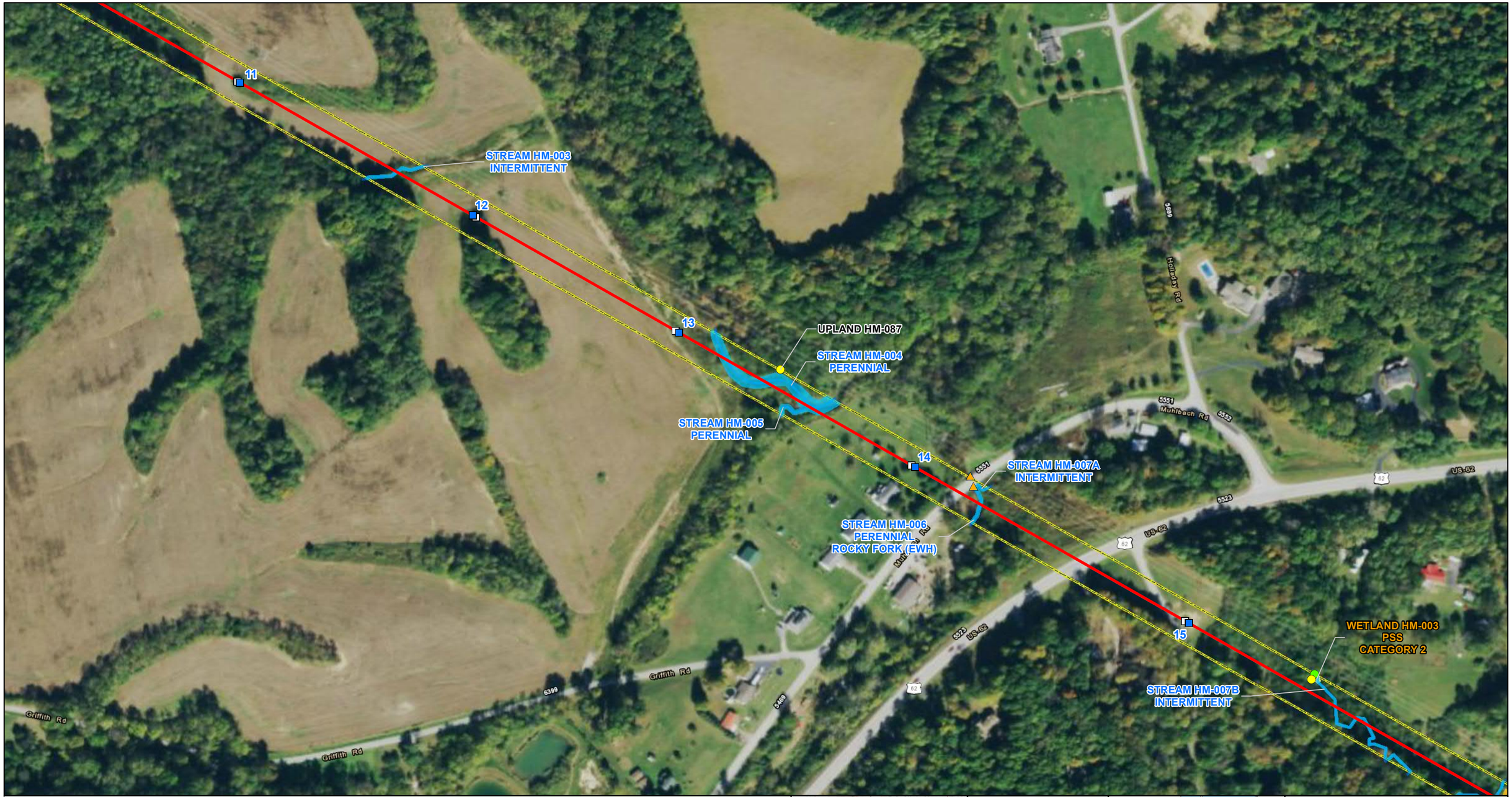
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Figure 3-3
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

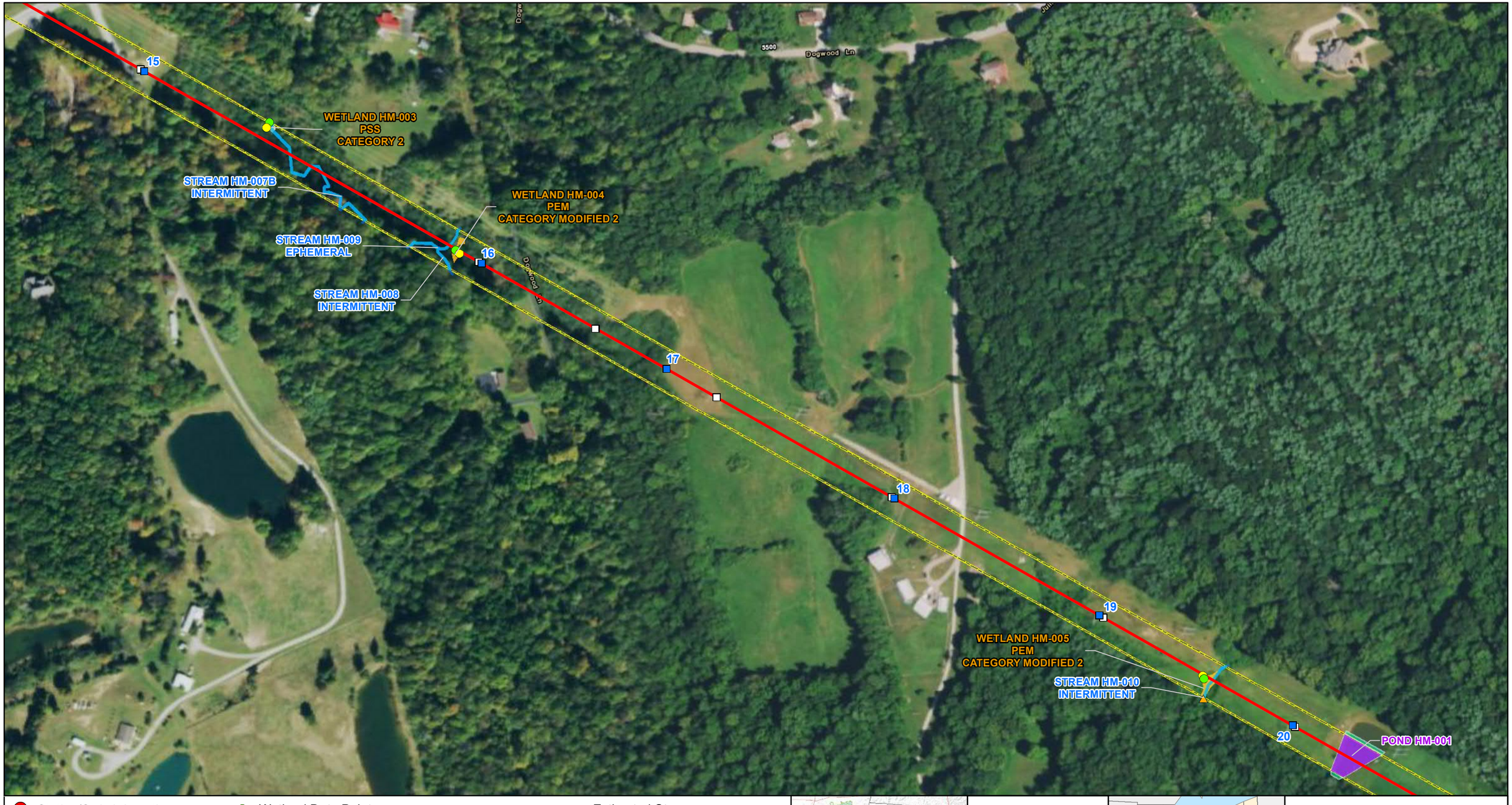
May 07, 2021



Figure 3-4
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

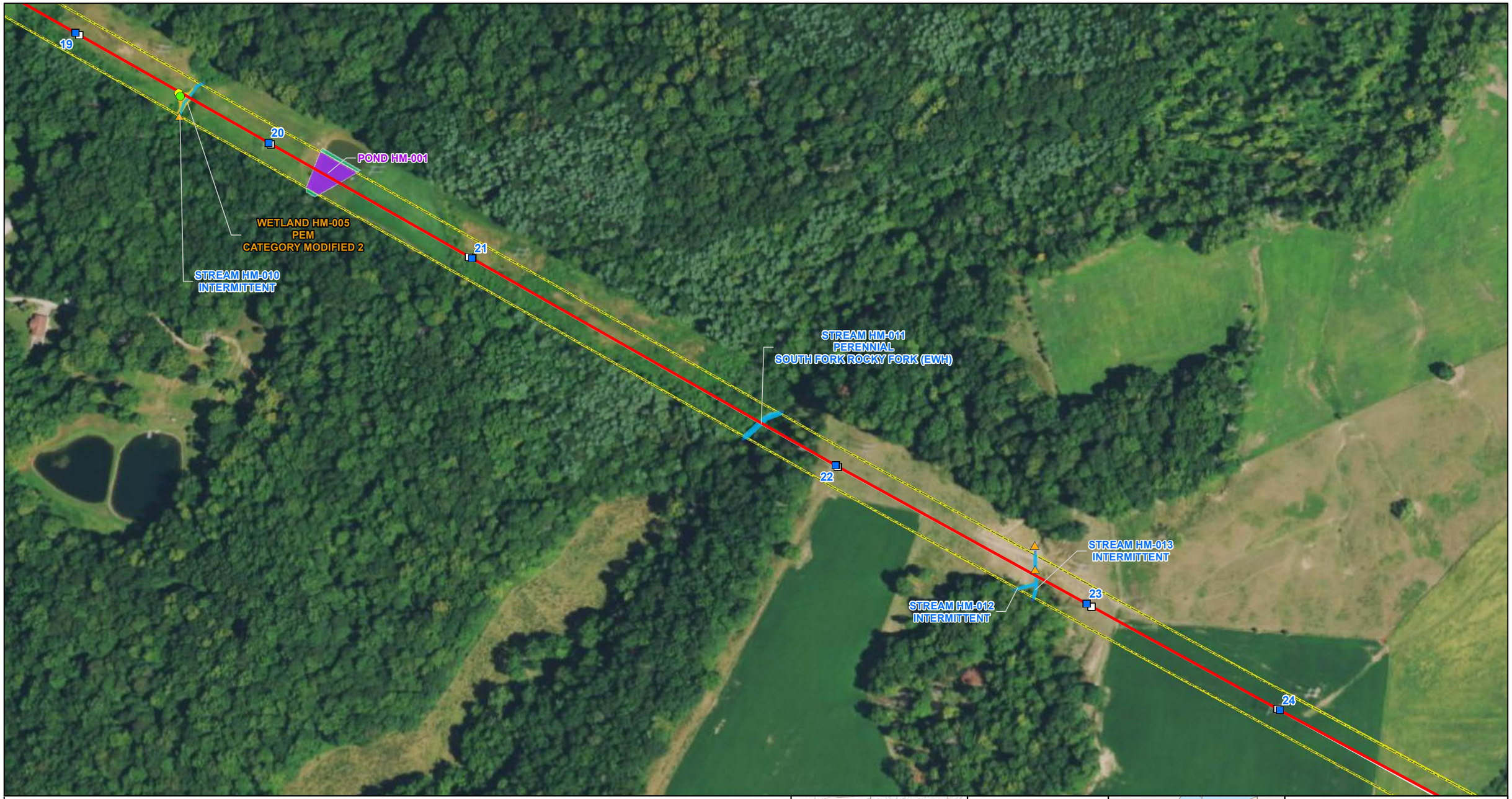
May 07, 2021



Figure 3-5
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

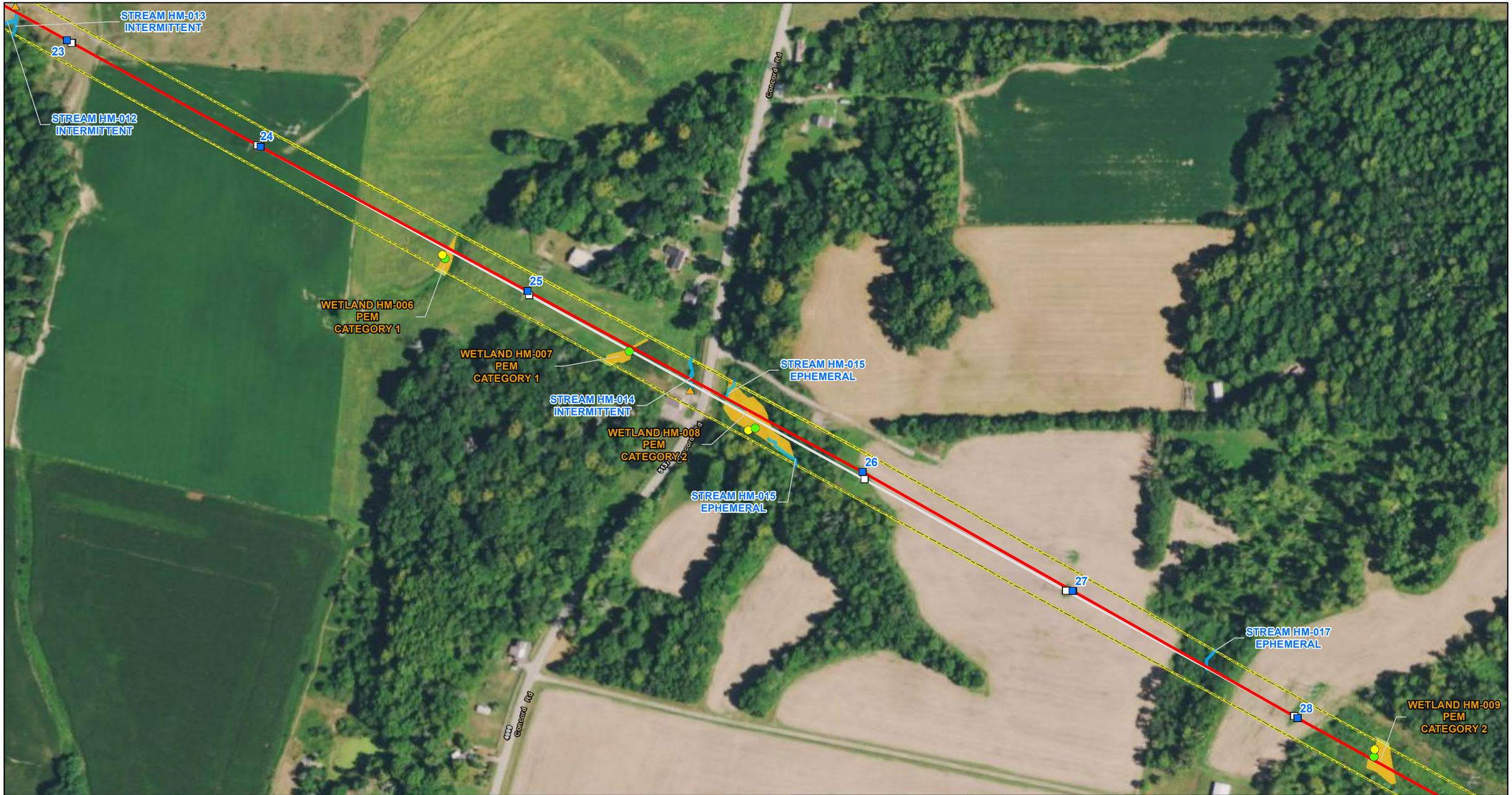
May 07, 2021



Figure 3-6
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

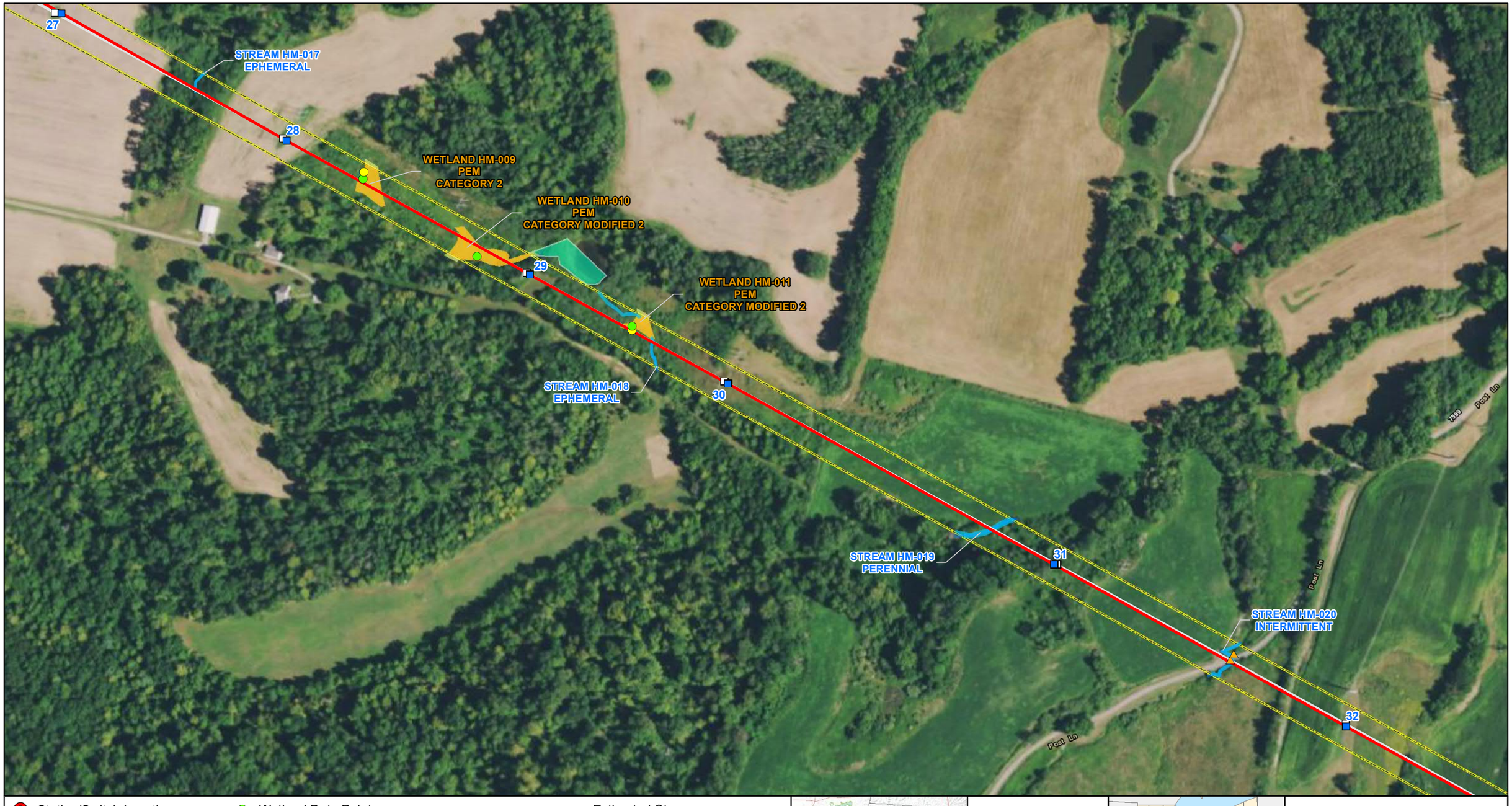
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Figure 3-7
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
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Coordinate System:
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FIPS 3402 (US Feet)
Datum: NAD 1983

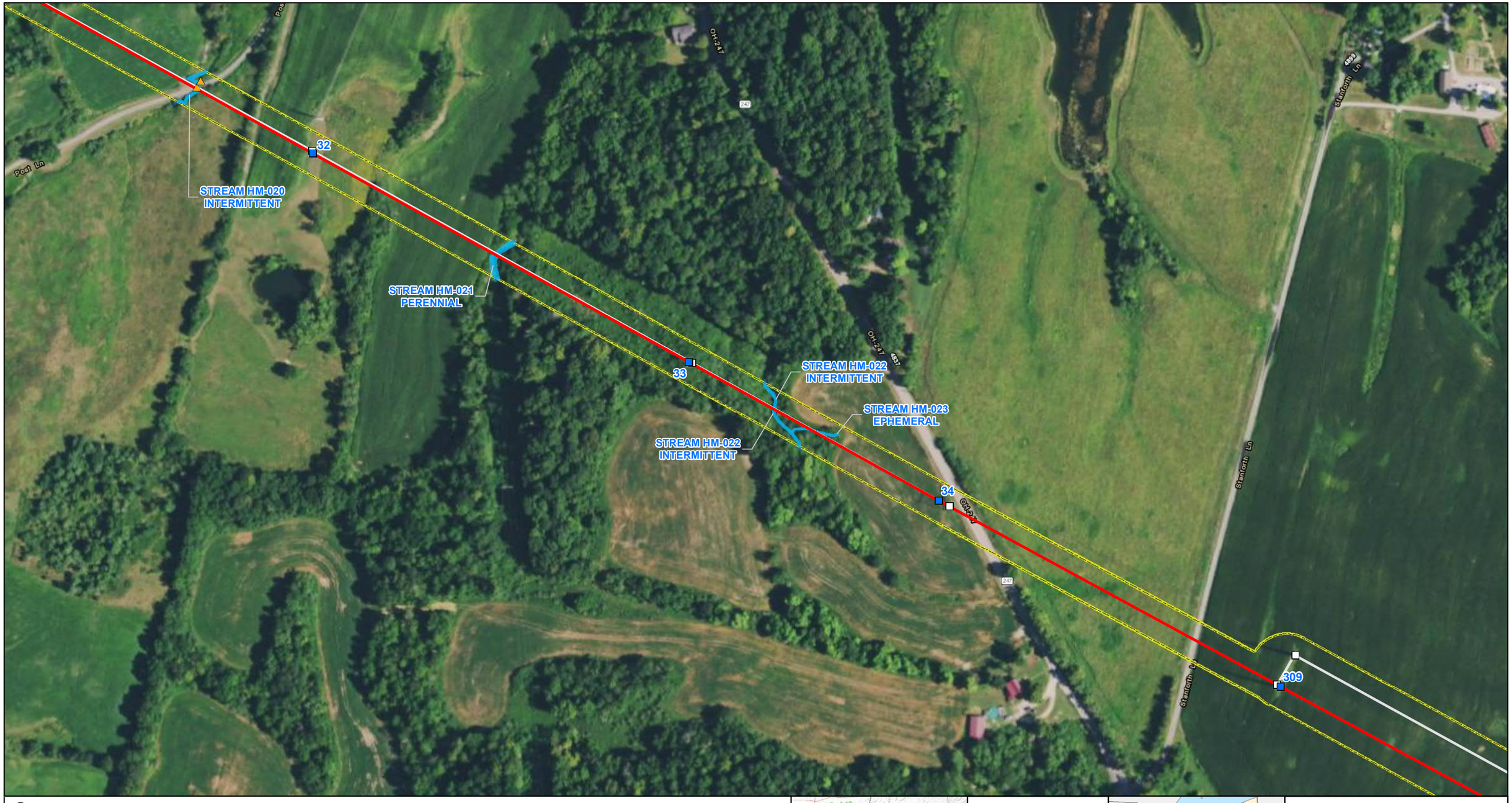
May 07, 2021



Figure 3-8
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

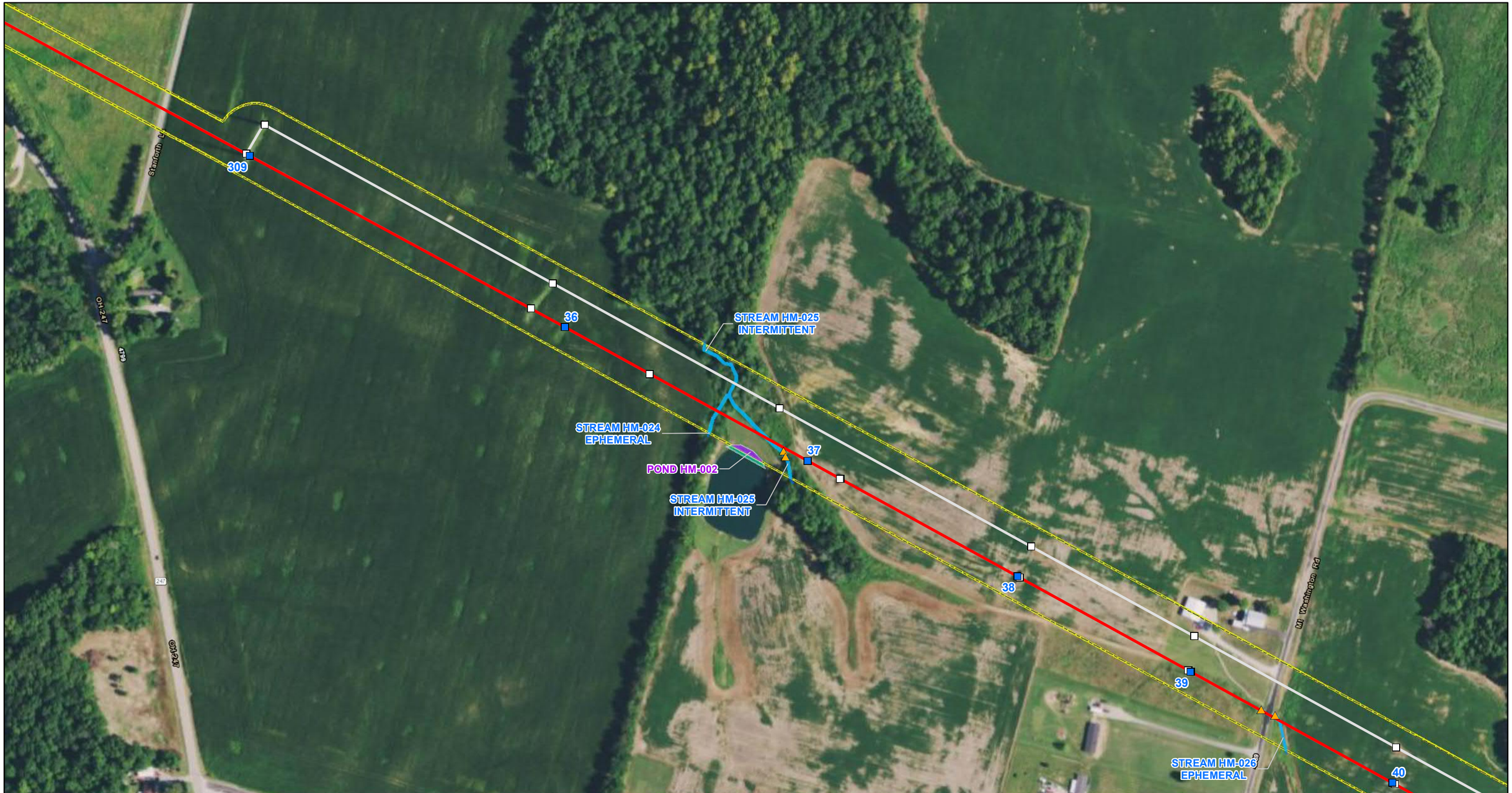
May 07, 2021



Figure 3-9
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

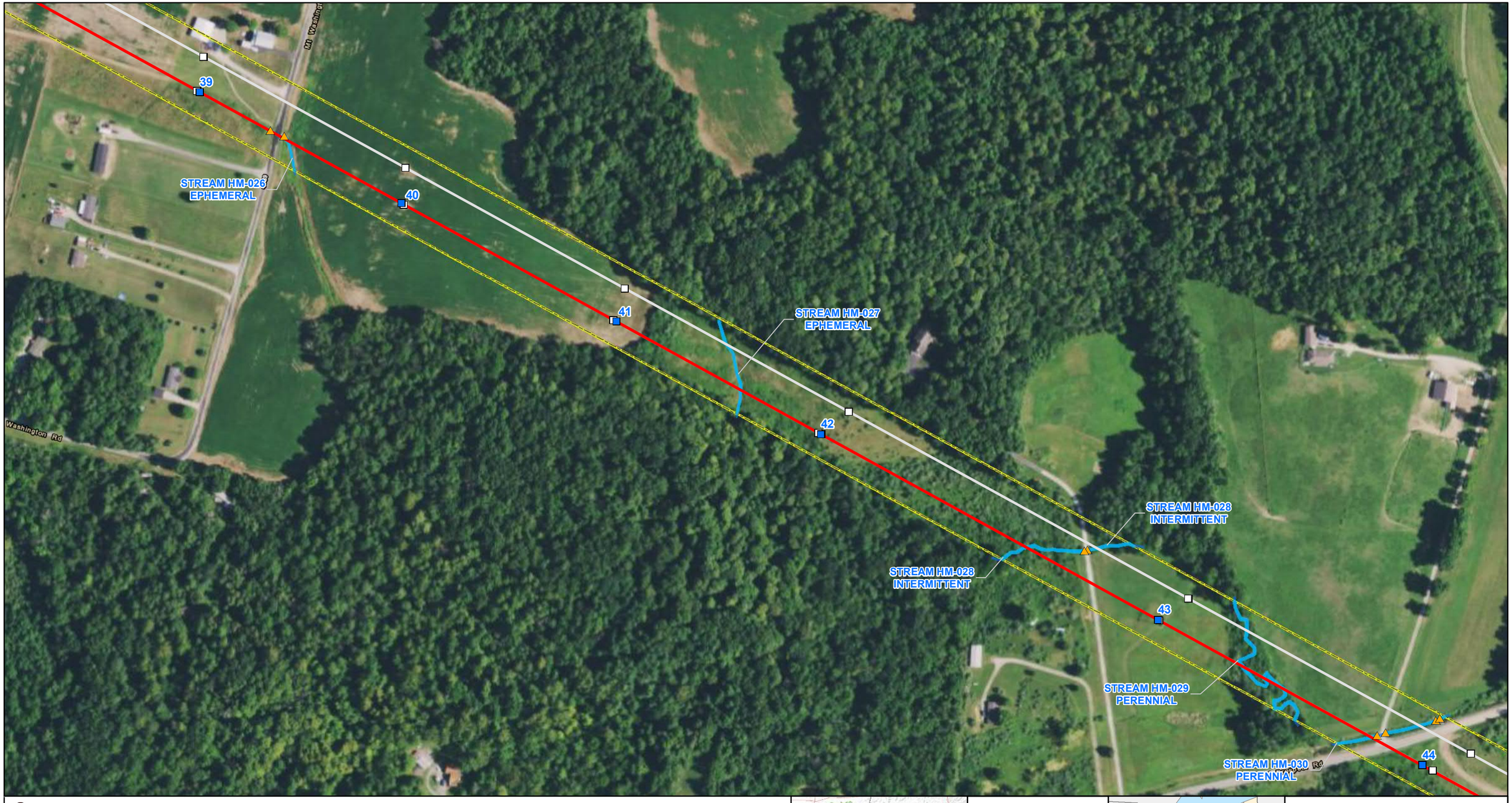
May 07, 2021



Figure 3-10
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

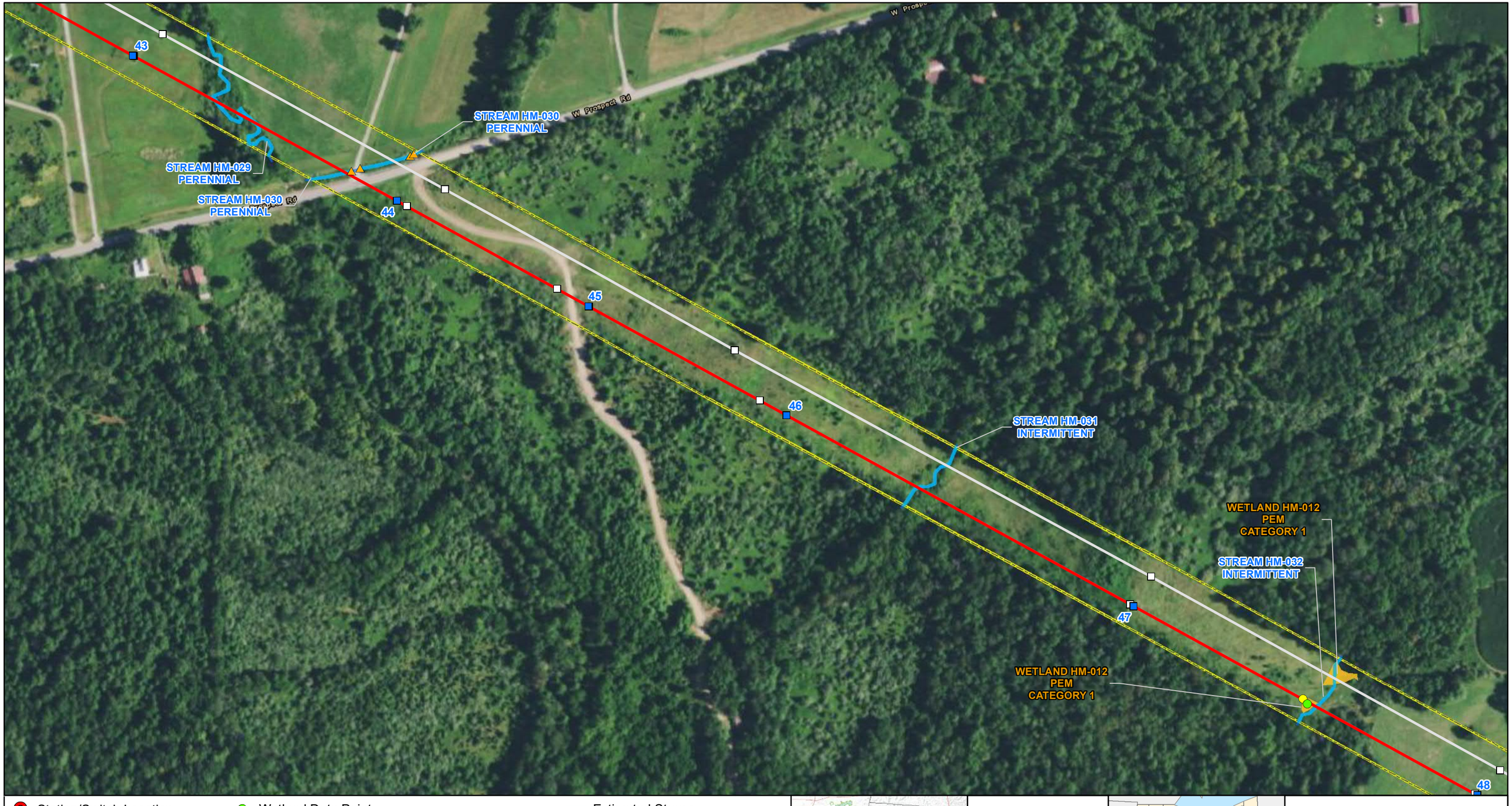
May 07, 2021



Figure 3-11
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

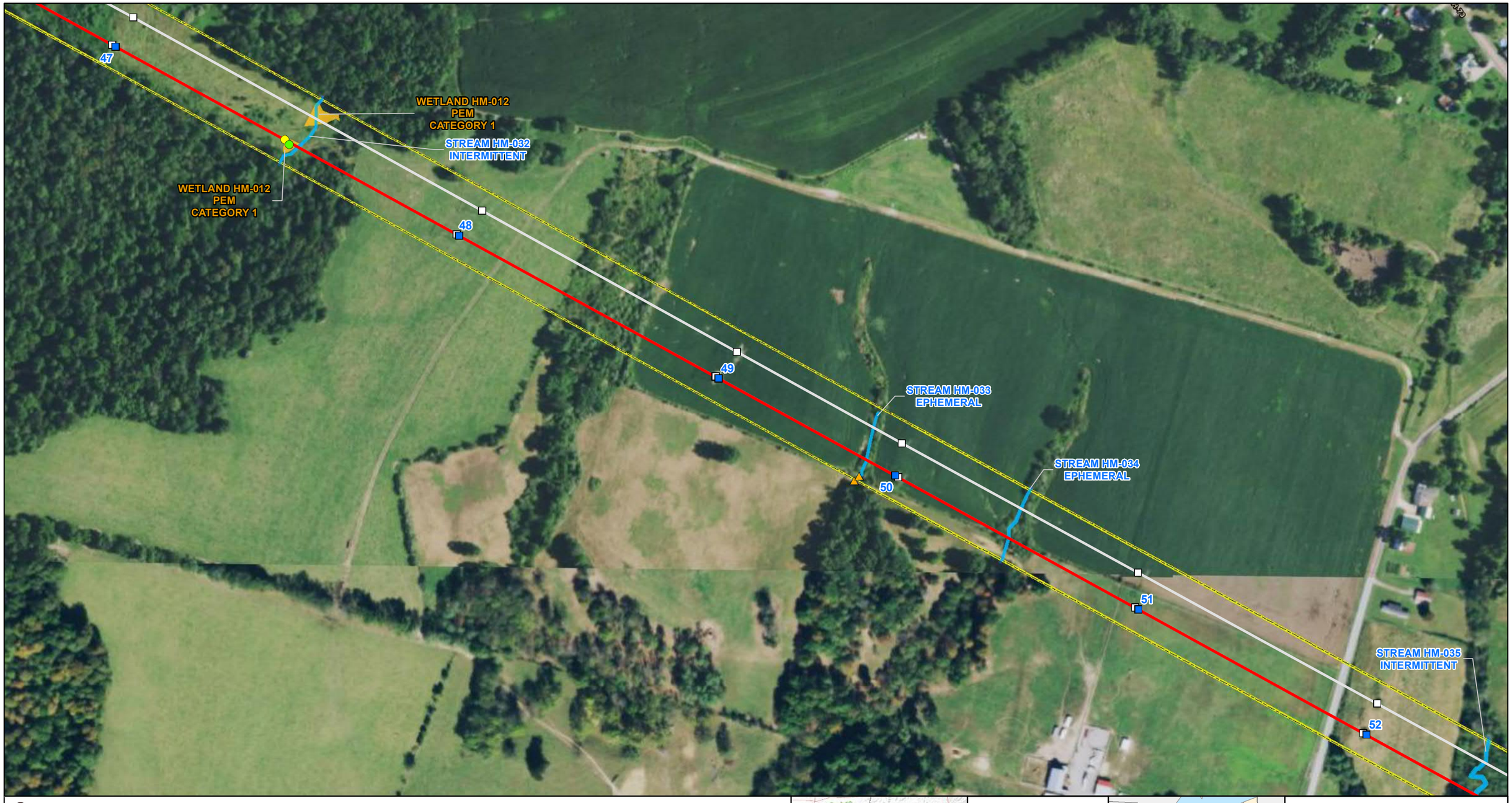
May 07, 2021



Figure 3-12
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
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- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

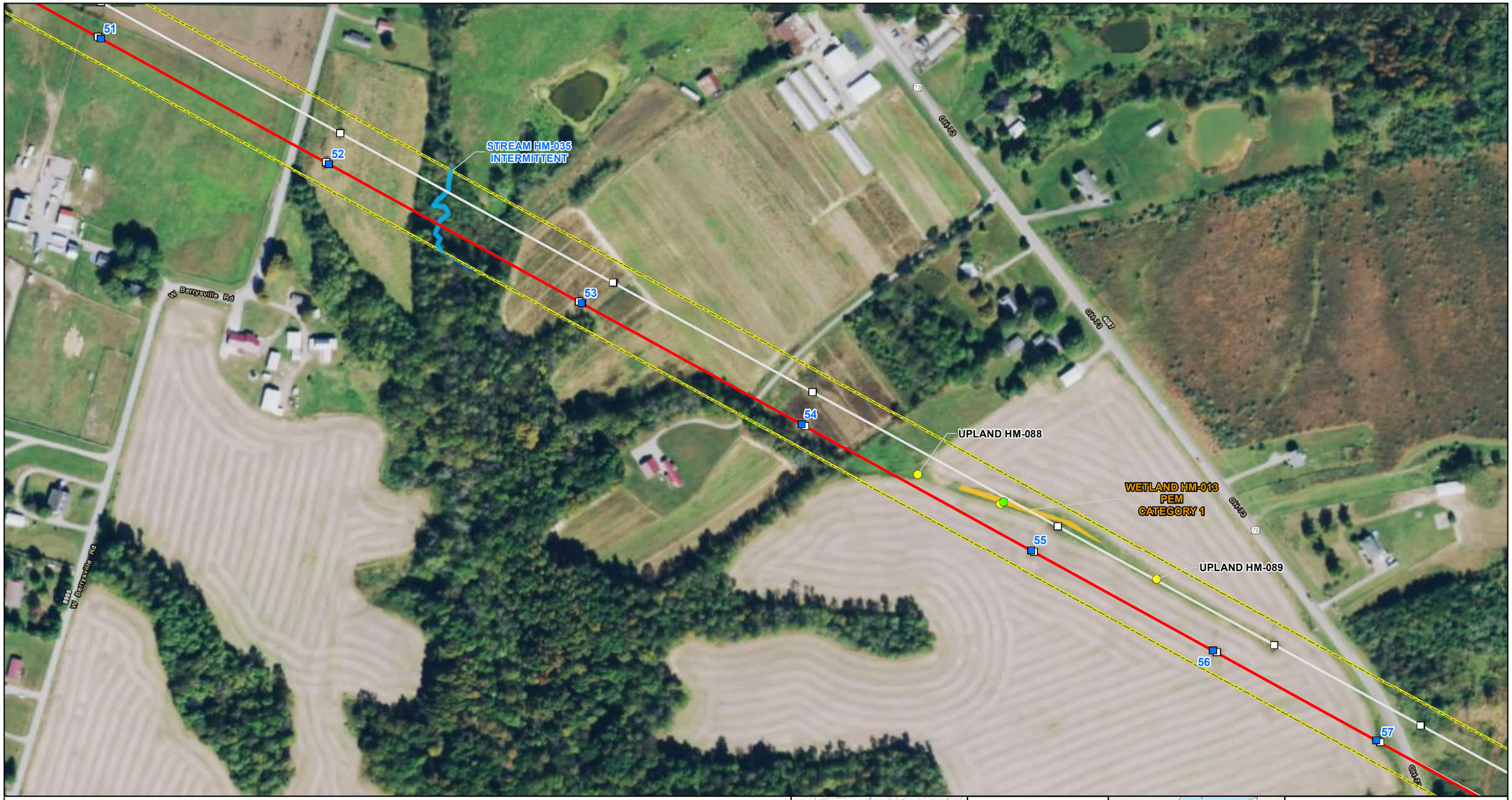
May 07, 2021



Figure 3-13
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
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- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-14
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
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- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

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Figure 3-15
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

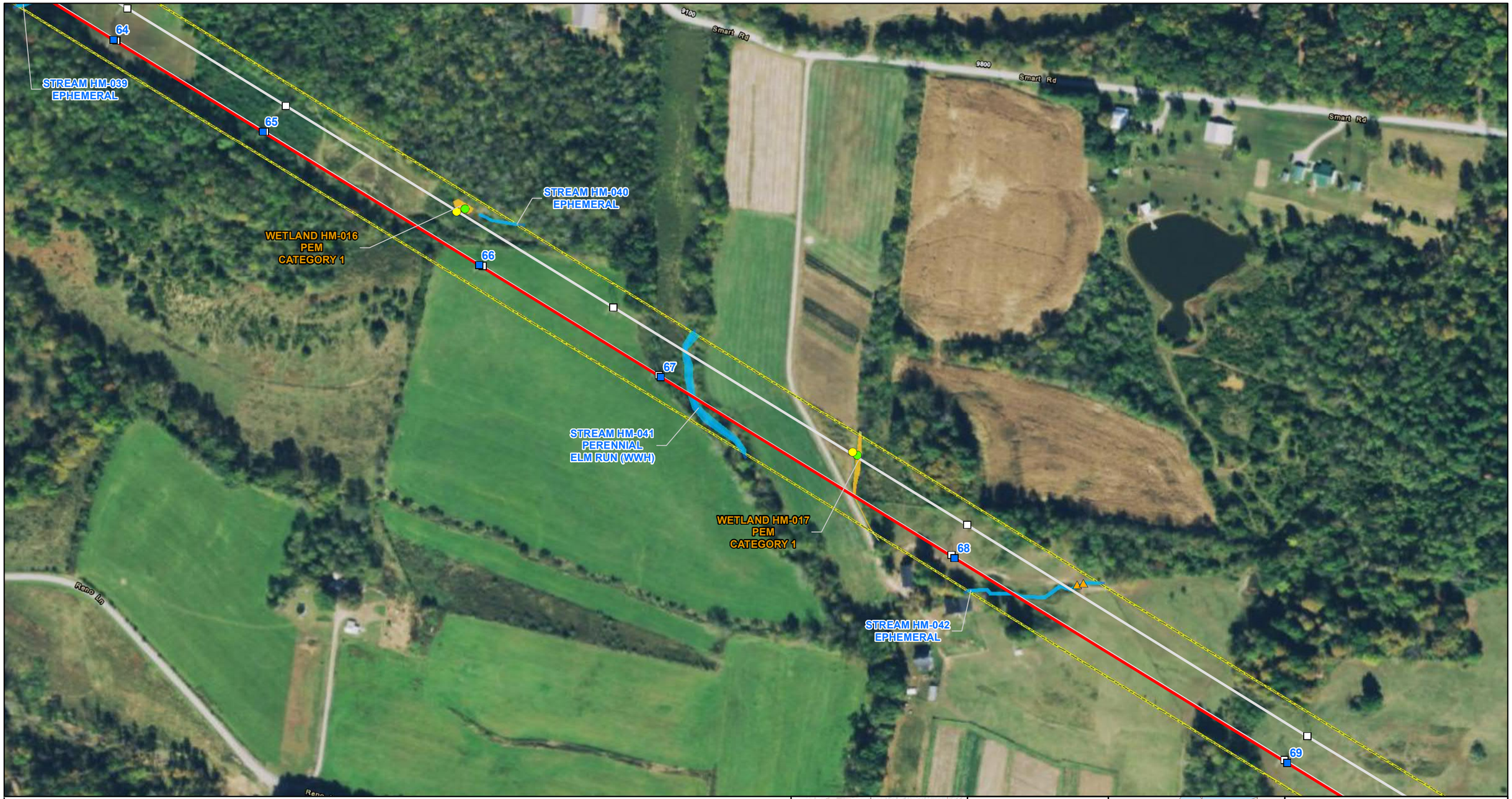
May 07, 2021



Figure 3-16
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

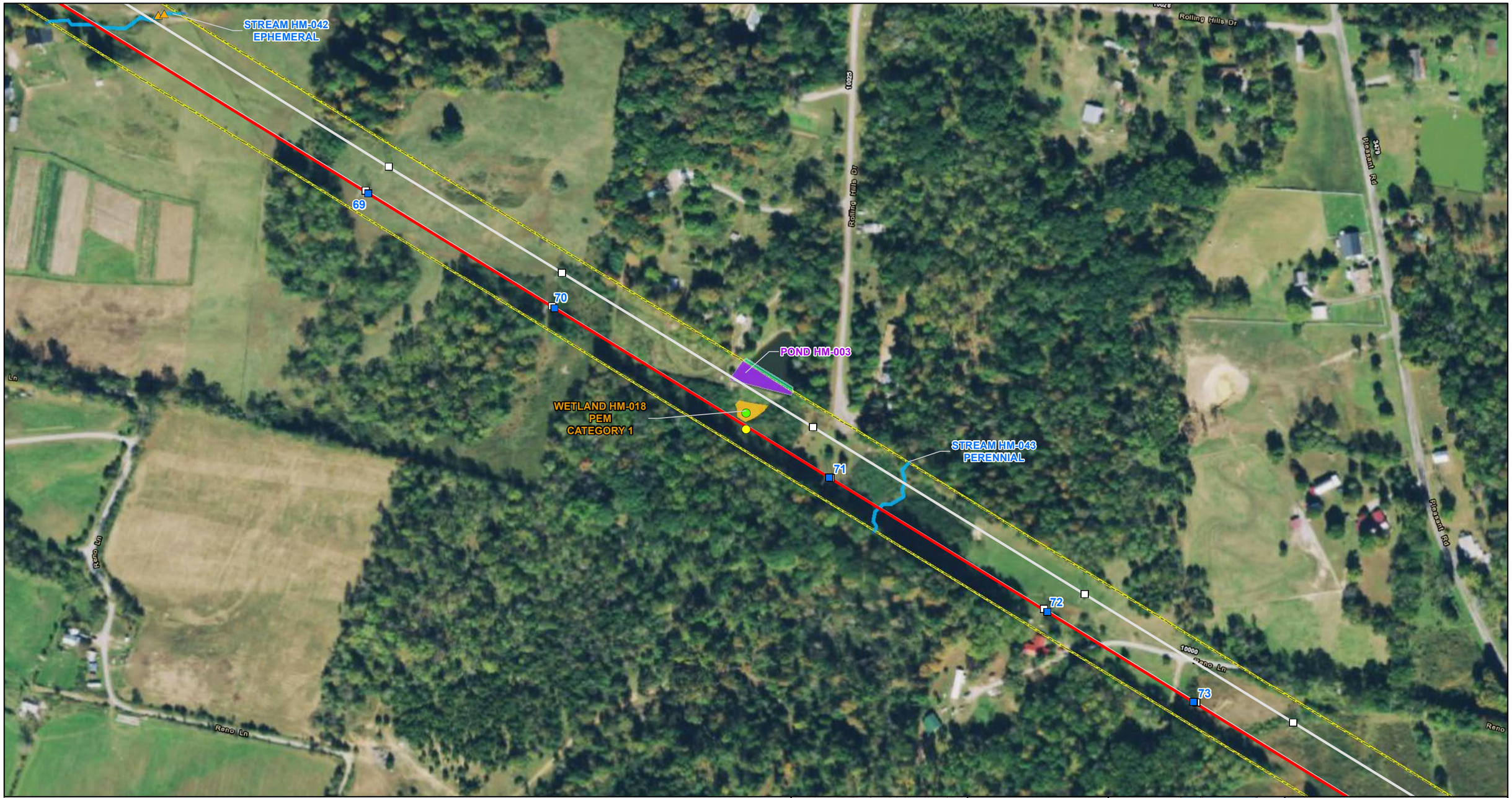
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Figure 3-17
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-18
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-19
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

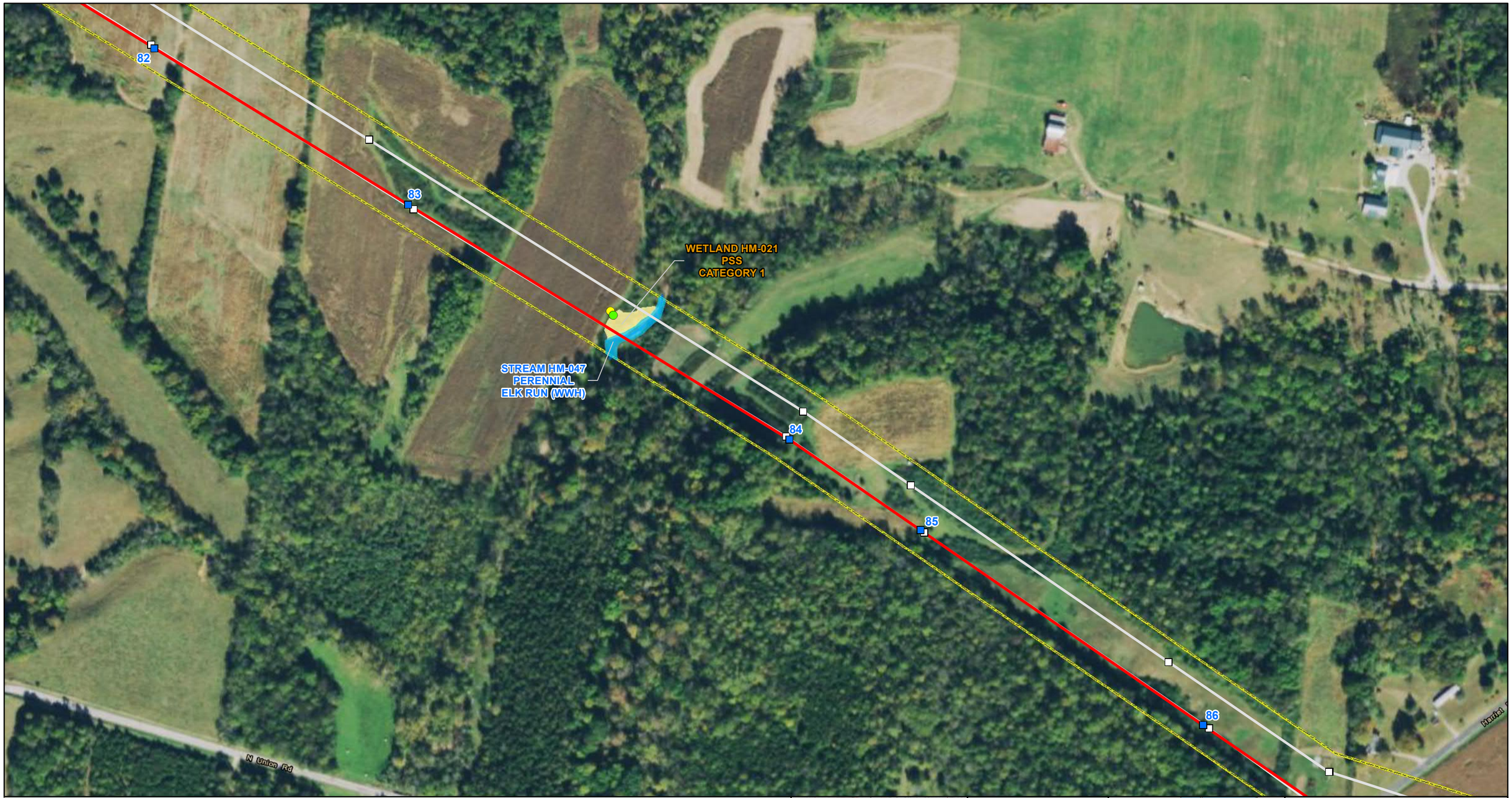
May 07, 2021

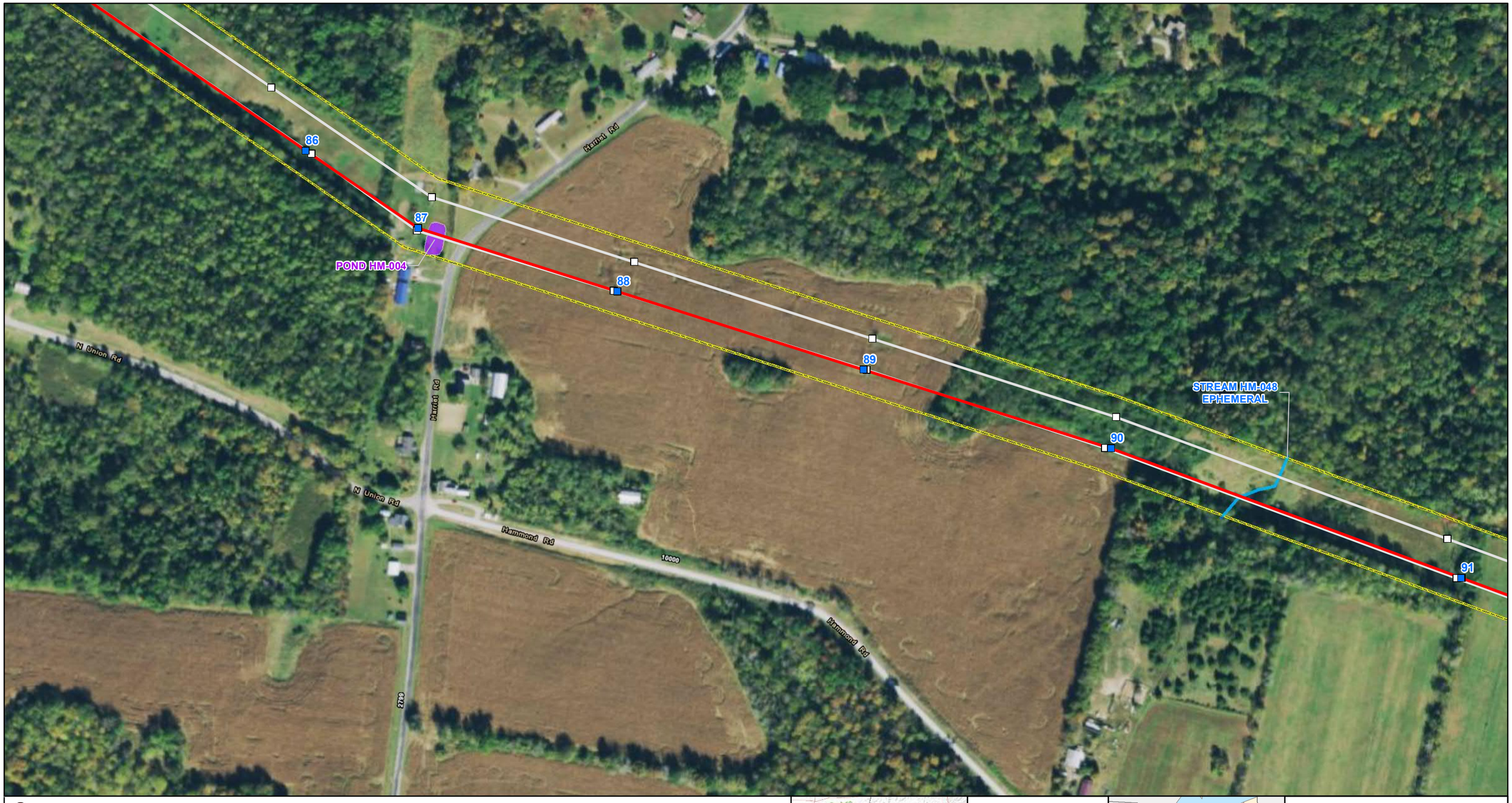


Figure 3-20
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet


82
83
84
85
86
WETLAND HM-021
PSS
CATEGORY 1
STREAM HM-047
PERENNIAL
ELK RUN (WWH)
N Union Rd
Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor
Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond
Estimated Stream
Estimated Wetland
Estimated Pond
Highland
Pike
Adams
Scioto
Shawnee State
Base Map Source:
National Agriculture
Imagery Program
Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983
May 07, 2021
OHIO
Project Location
Highland County
Pike County
Adams County
Scioto County
Figure 3-21
Delineated Features Map
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project
0
200
400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-22
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

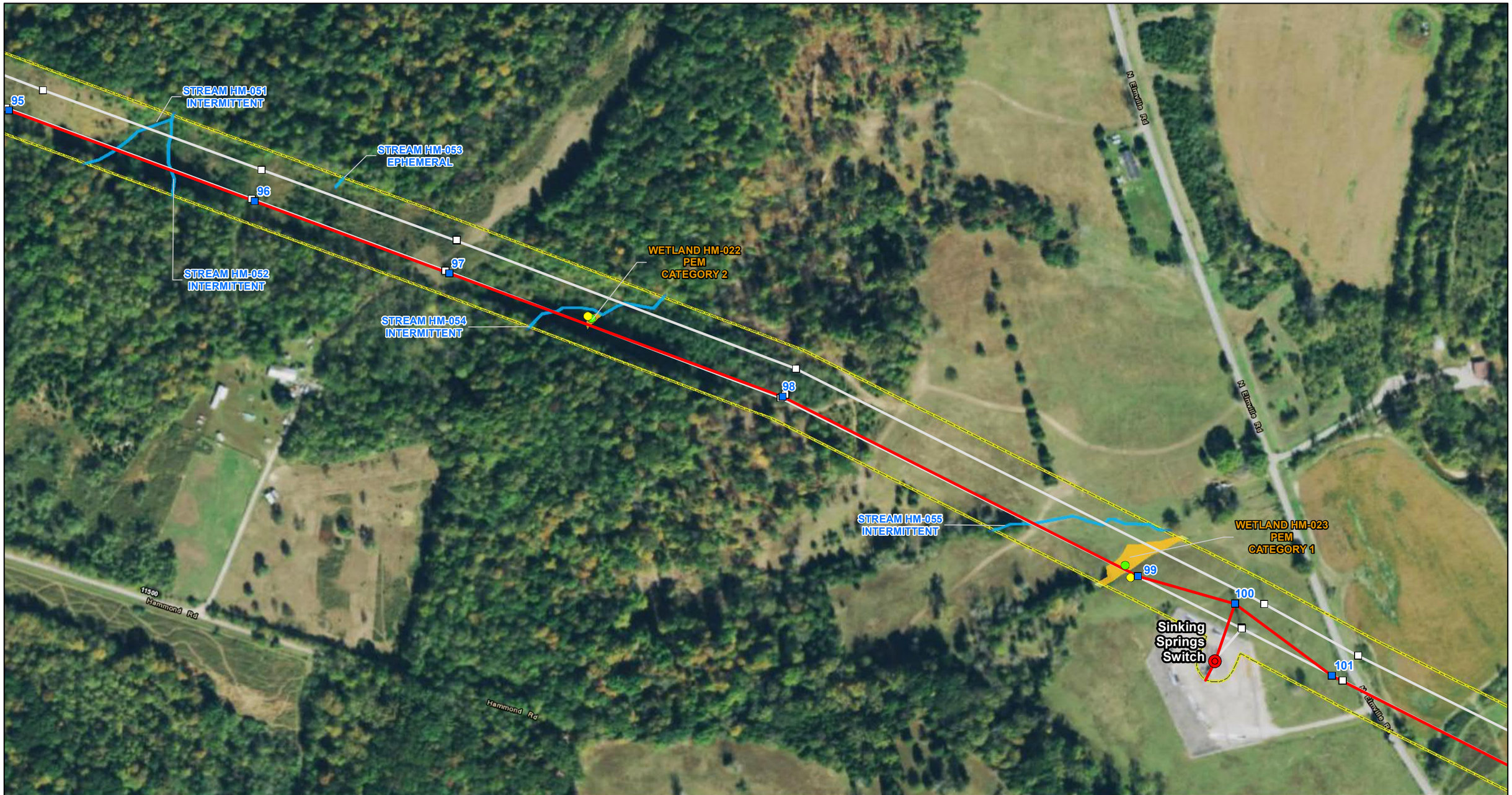
May 07, 2021



Figure 3-23
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
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Imagery Program

Coordinate System:
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FIPS 3402 (US Feet)
Datum: NAD 1983

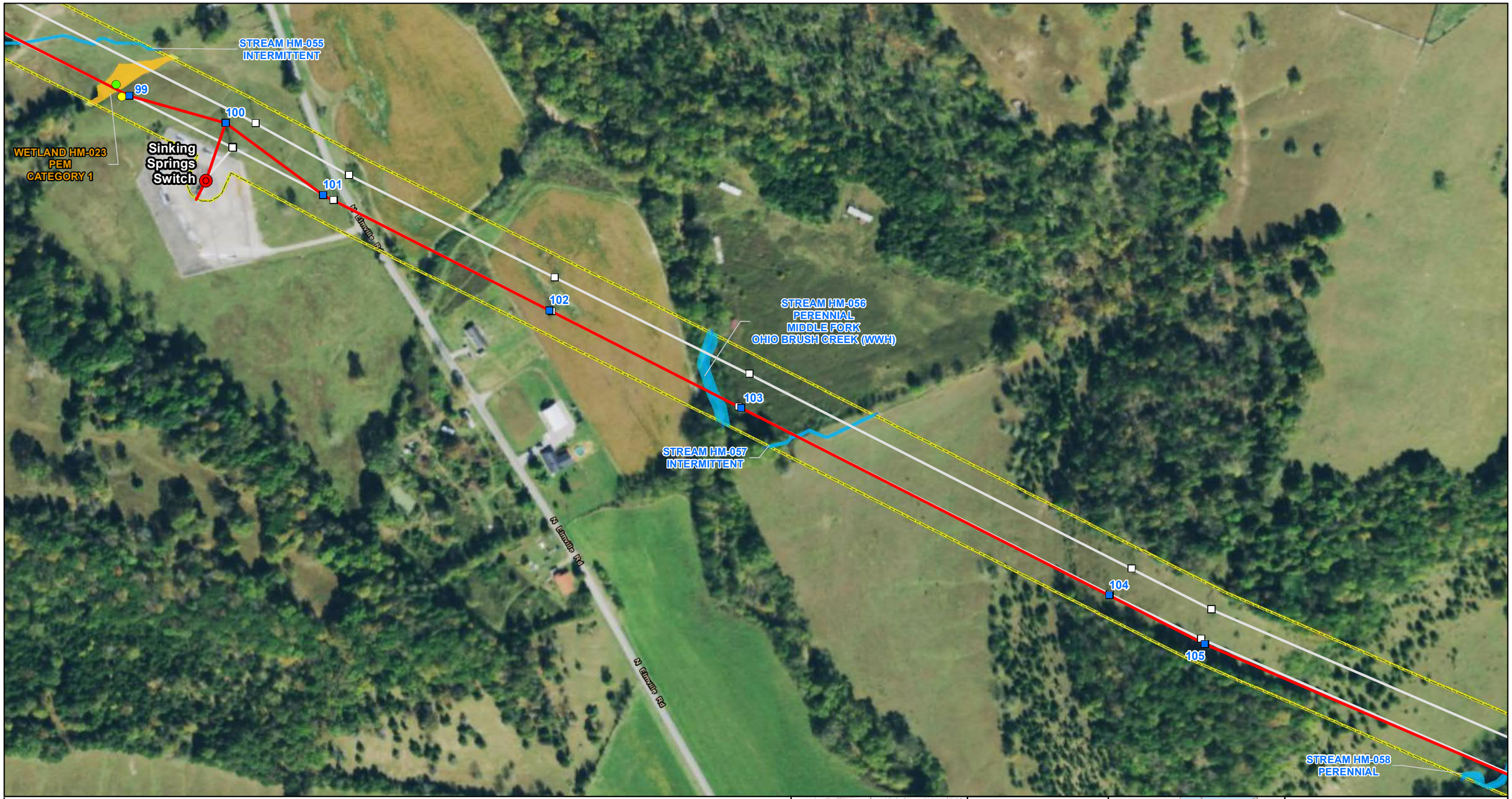
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Figure 3-24
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-25
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

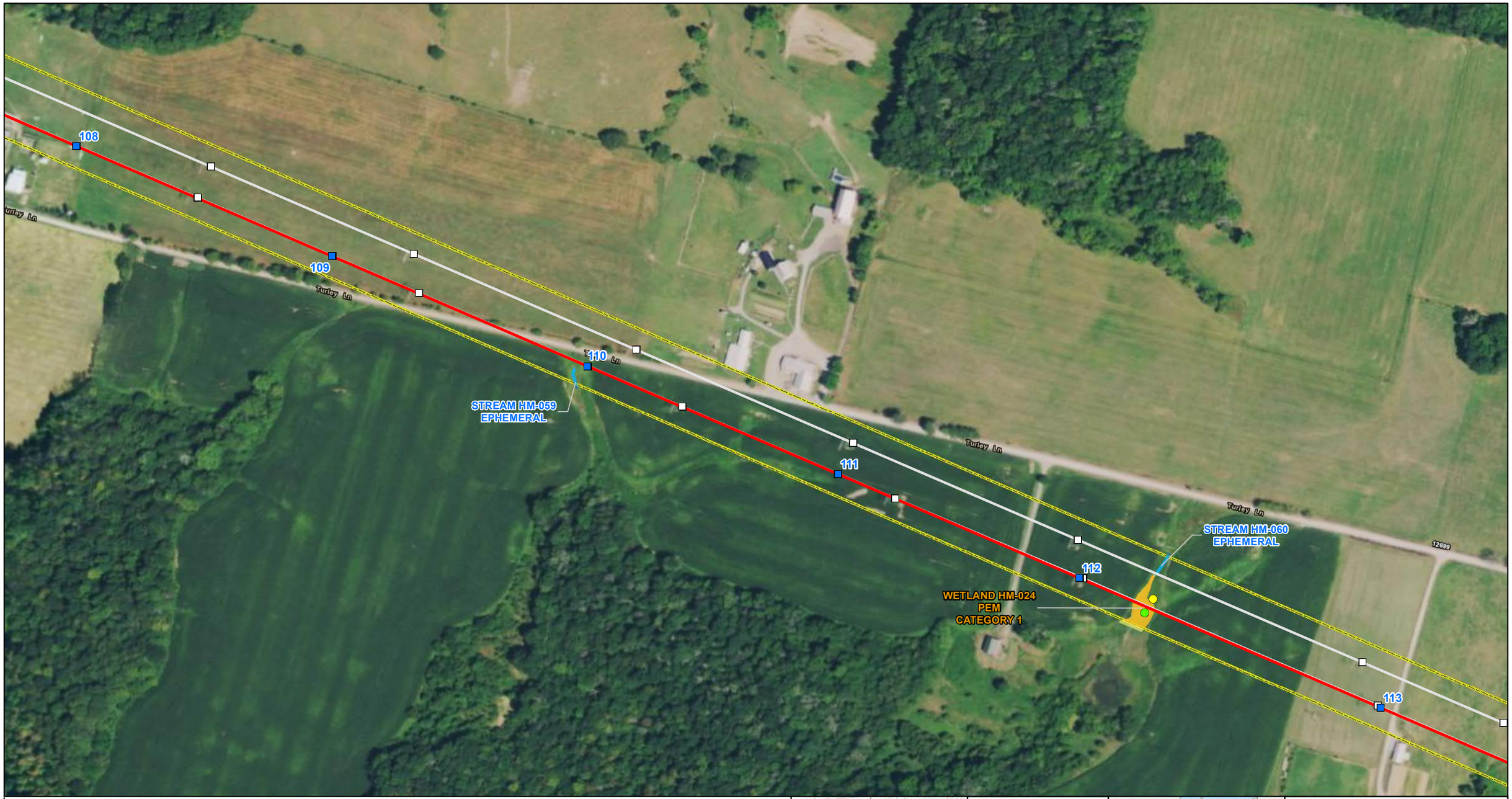
May 07, 2021



Figure 3-26
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
- Delineated Stream
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- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-27
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-28
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
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- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
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- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
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Datum: NAD 1983

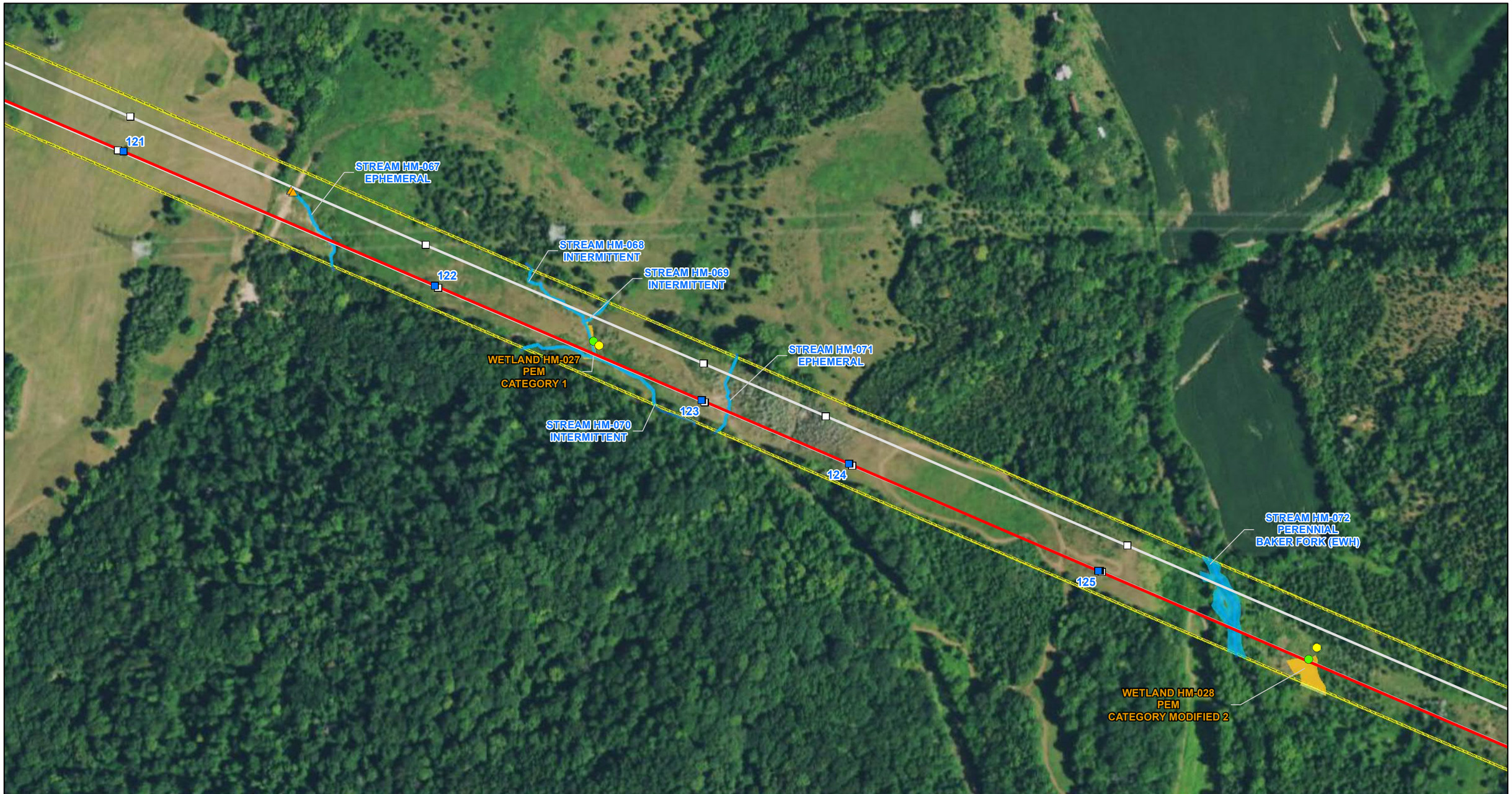
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Figure 3-29
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
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- Culvert
- Routes
- Existing Transmission Lines
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-30
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

STREAM HM-072
PERENNIAL
BAKER FORK (EWH)

WETLAND HM-028
PEM
MODIFIED CATEGORY 2

126

WETLAND HM-029
PEM
CATEGORY 1

WETLAND HM-029
PEM
CATEGORY 1

127

STREAM HM-073
PERENNIAL
STRAIGHT CREEK (EWH)

128

Strait Creek Rd

Strait Creek Rd

Strait Creek Rd

Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

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Figure 3-31
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
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- Existing Structures
- Culvert
- Routes
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

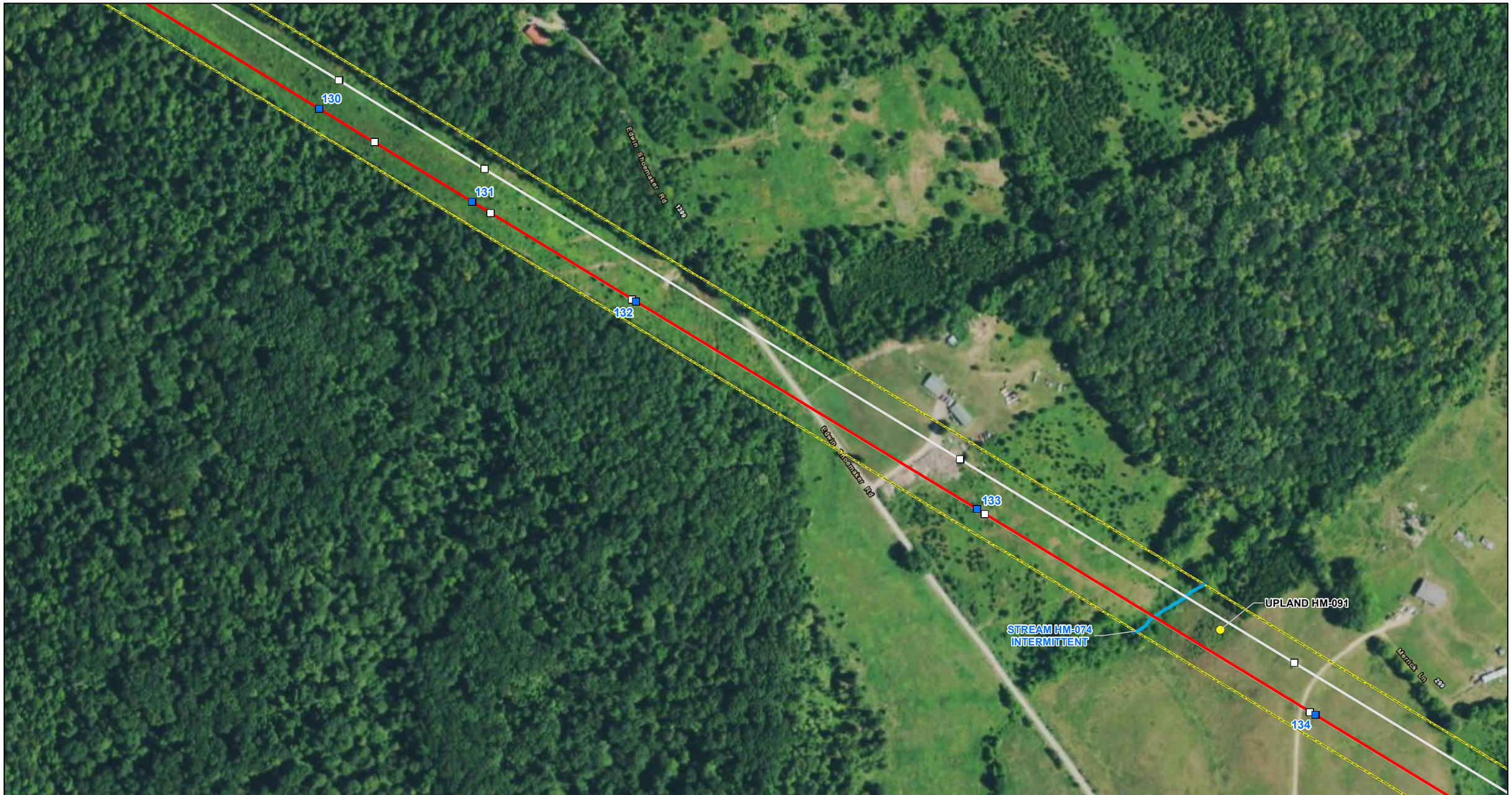
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Figure 3-32
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

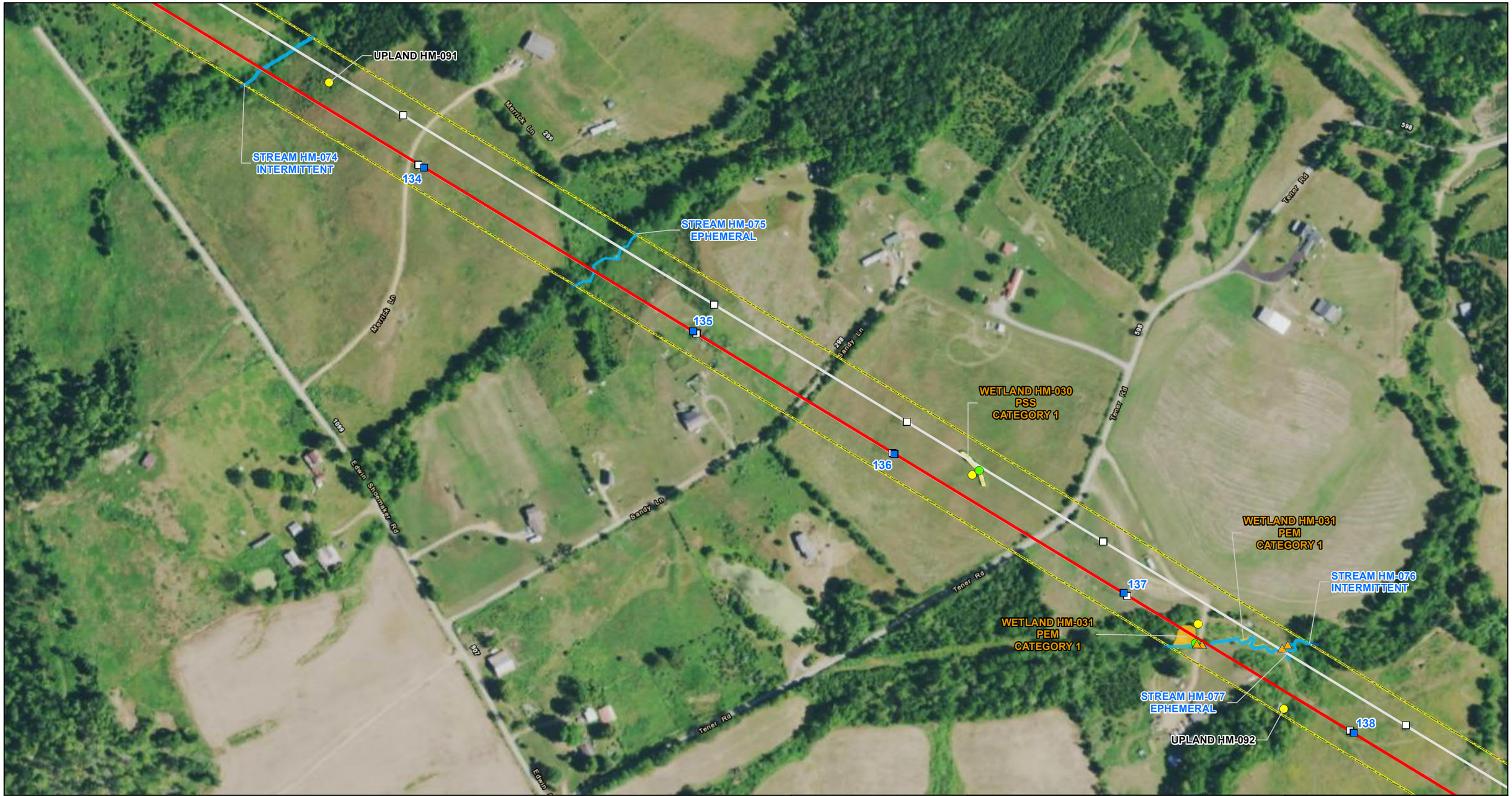
May 07, 2021



Figure 3-33
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-34
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

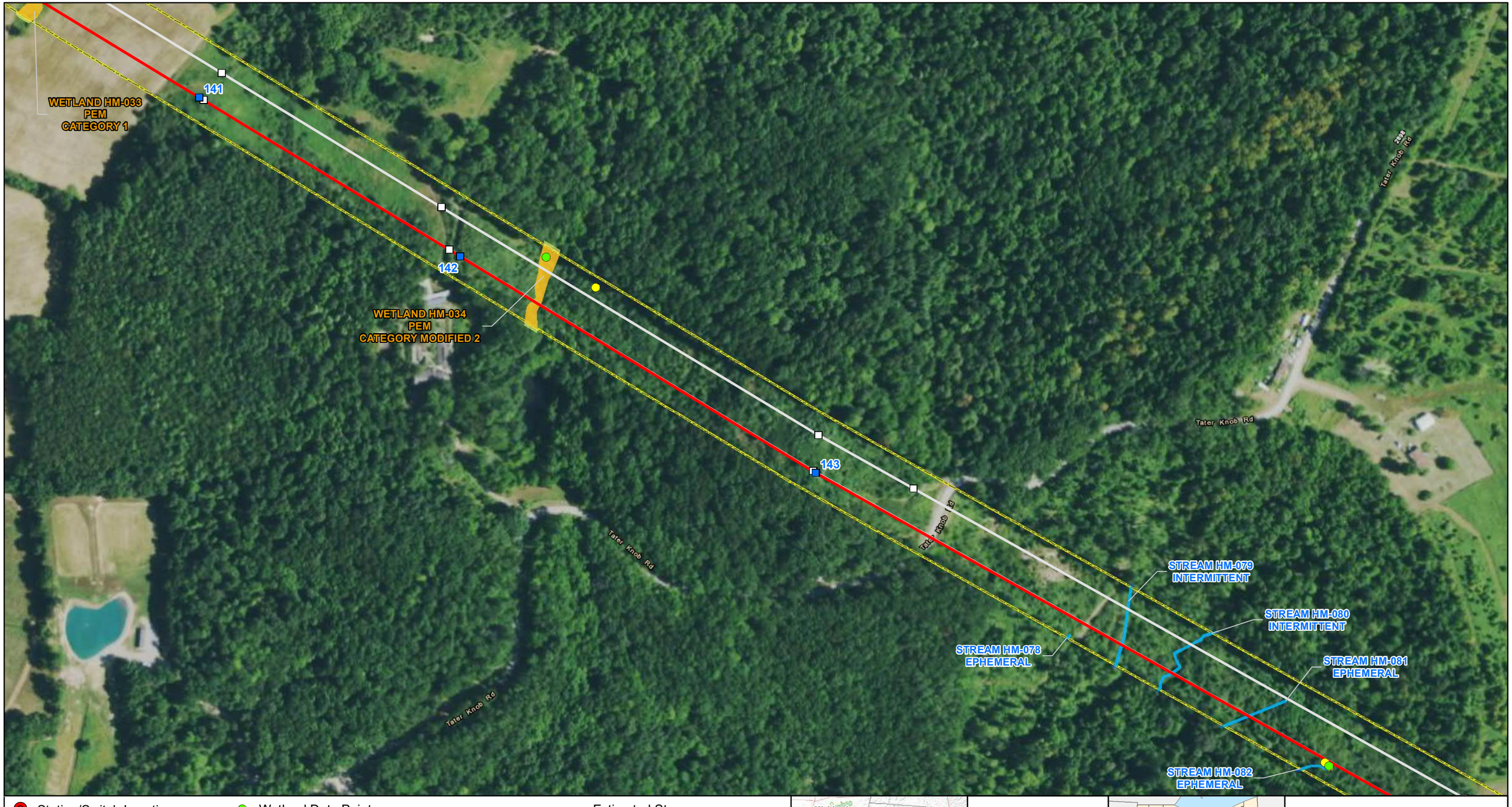
May 07, 2021



Figure 3-35
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-36
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-37
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

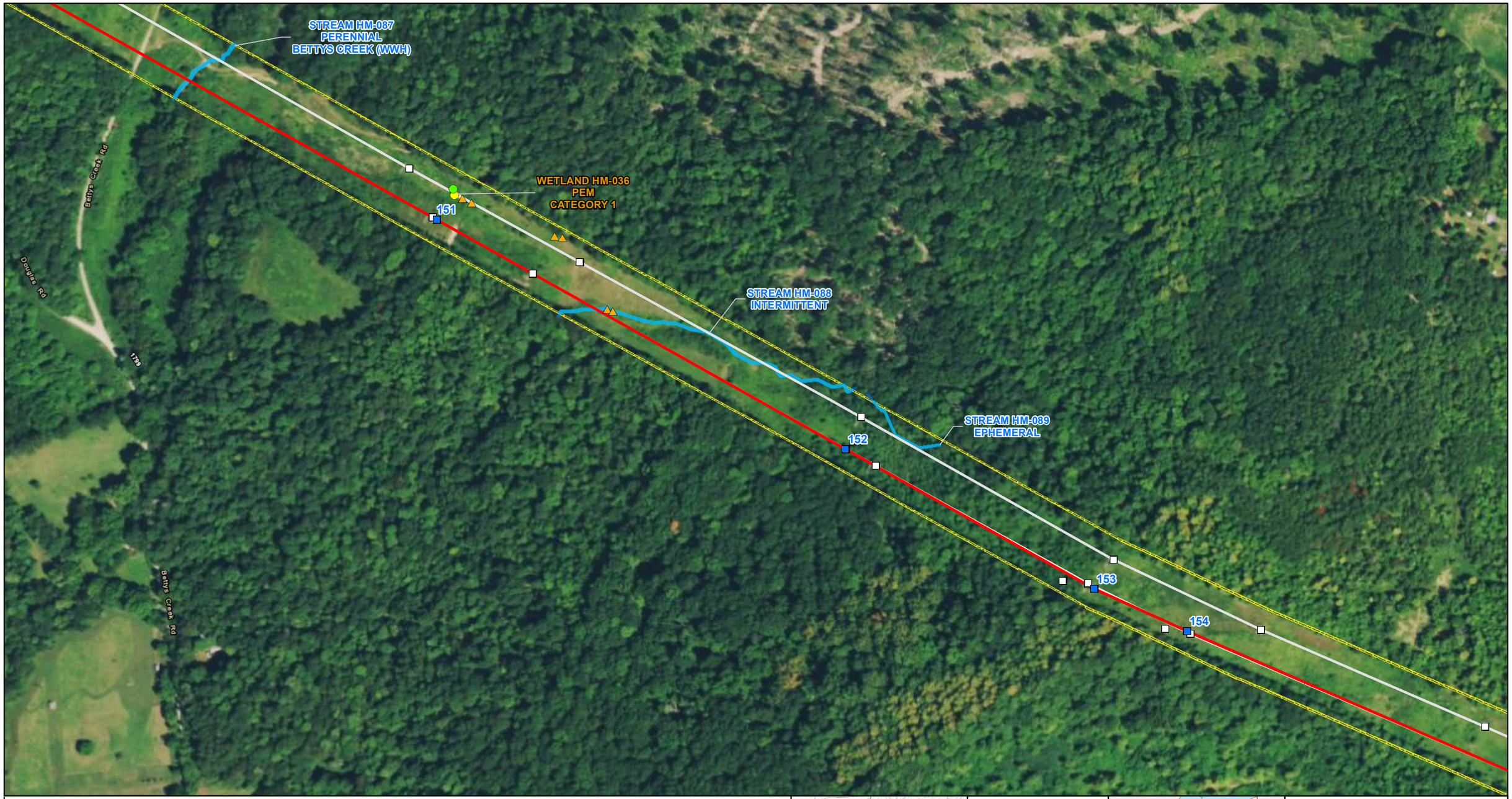
May 07, 2021



Figure 3-38
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-39
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

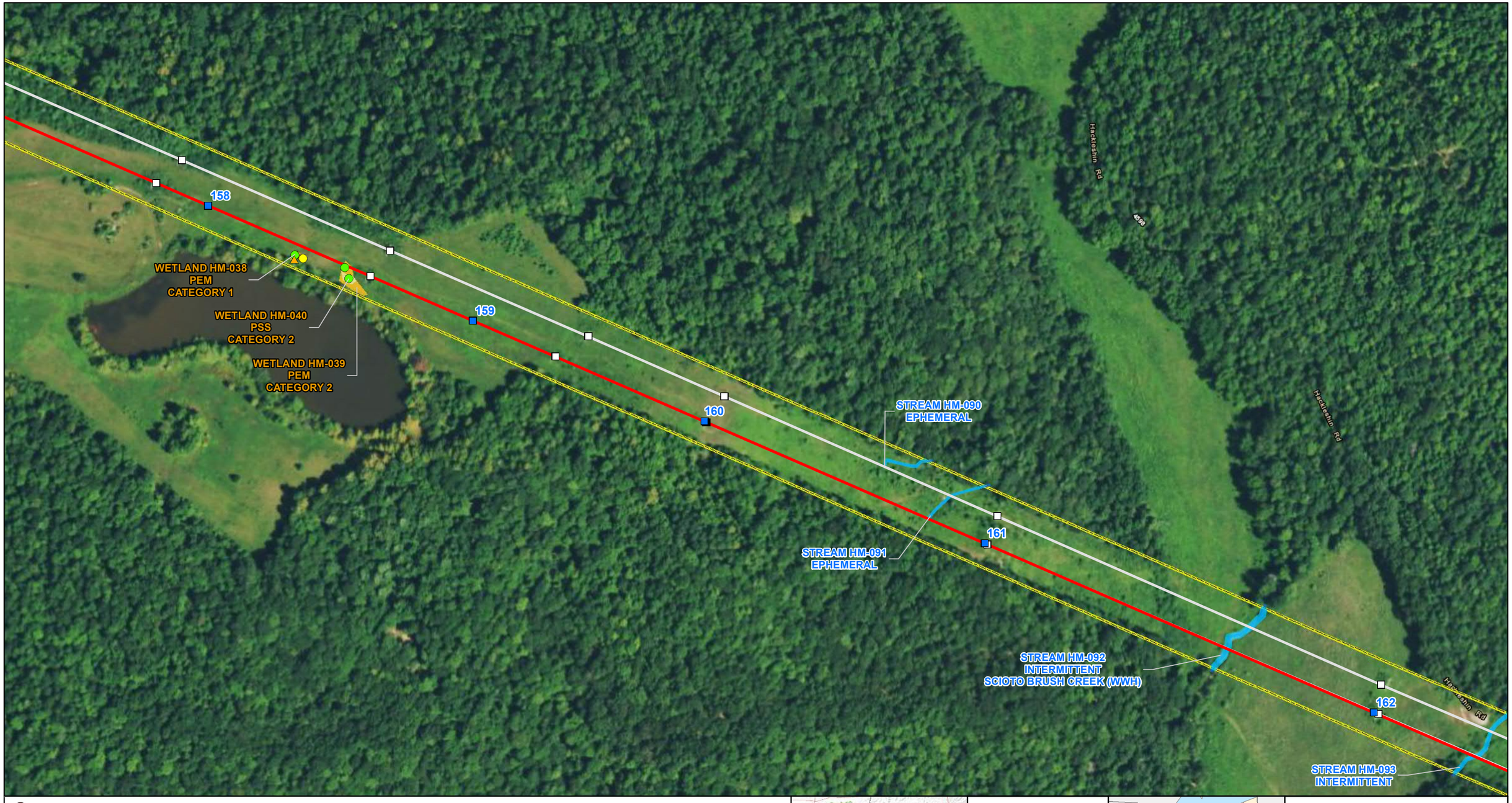
May 07, 2021



Figure 3-40
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

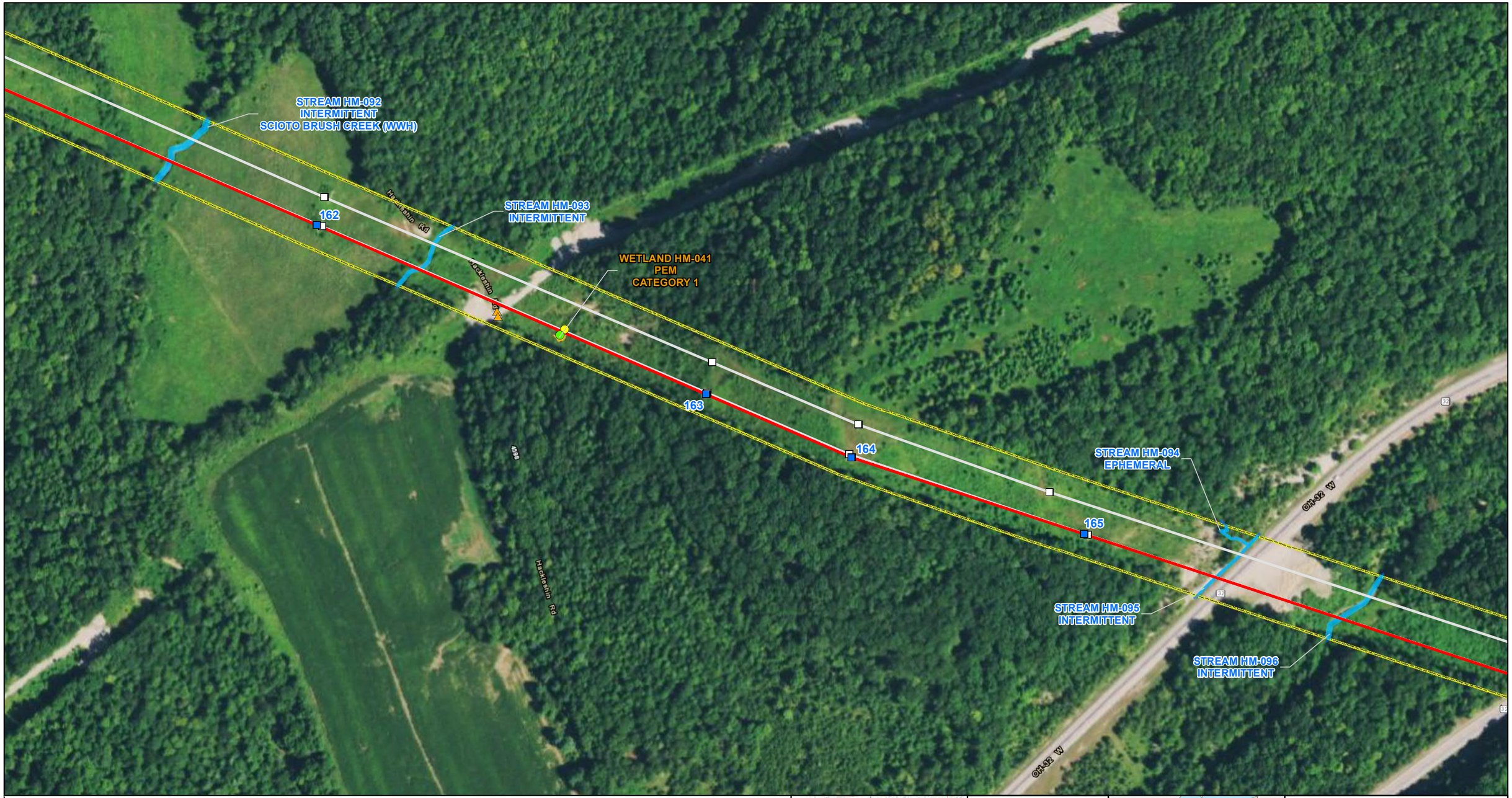
May 07, 2021



Figure 3-41
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-42
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

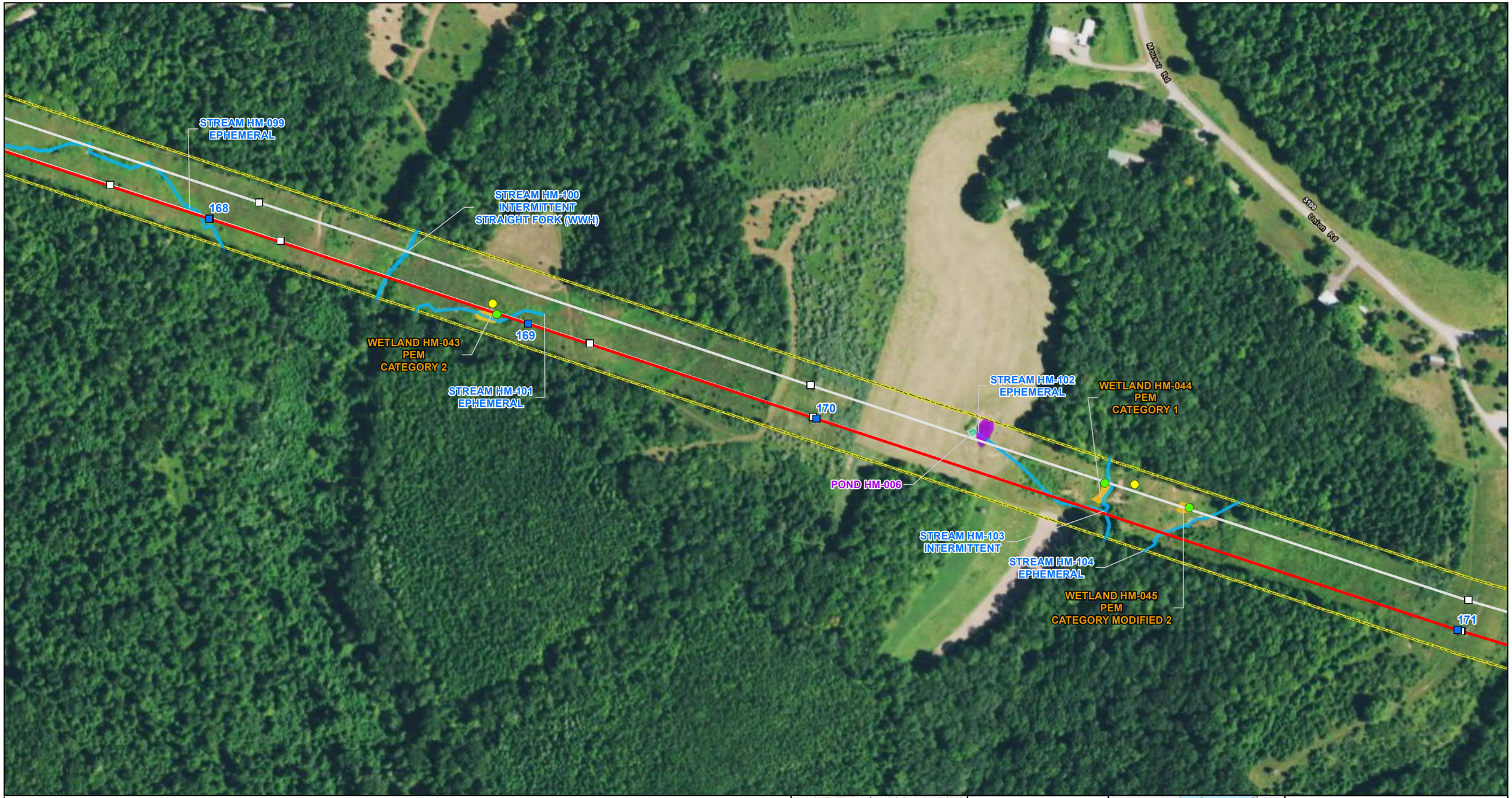
May 07, 2021

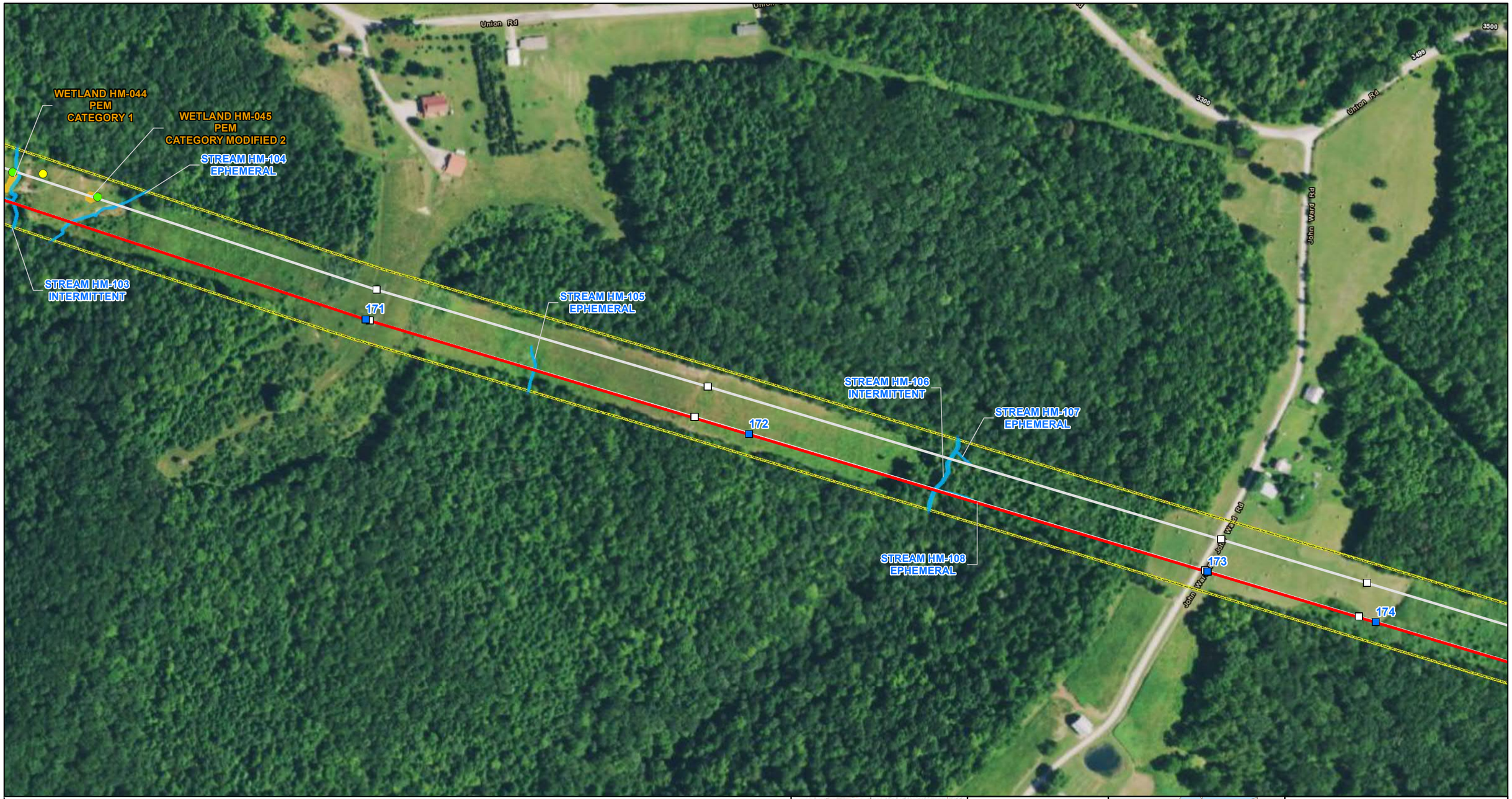


Figure 3-43
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet


STREAM HM-099
EPHEMERAL
168
STREAM HM-100
INTERMITTENT
STRAIGHT FORK (WWH)
WETLAND HM-043
PEM
CATEGORY 2
169
STREAM HM-101
EPHEMERAL
170
STREAM HM-102
EPHEMERAL
WETLAND HM-044
PEM
CATEGORY 1
POND HM-006
STREAM HM-103
INTERMITTENT
STREAM HM-104
EPHEMERAL
WETLAND HM-045
PEM
CATEGORY MODIFIED 2
171
Manor Rd
Union Rd
Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor
Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond
Estimated Stream
Estimated Wetland
Estimated Pond
Highland
Pike
Adams
Scioto
Shawnee State
Base Map Source:
National Agriculture
Imagery Program
Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983
May 07, 2021
OHIO
Project Location
Highland County
Pike County
Adams County
Scioto County
Figure 3-44
Delineated Features Map
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project
0
200
400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

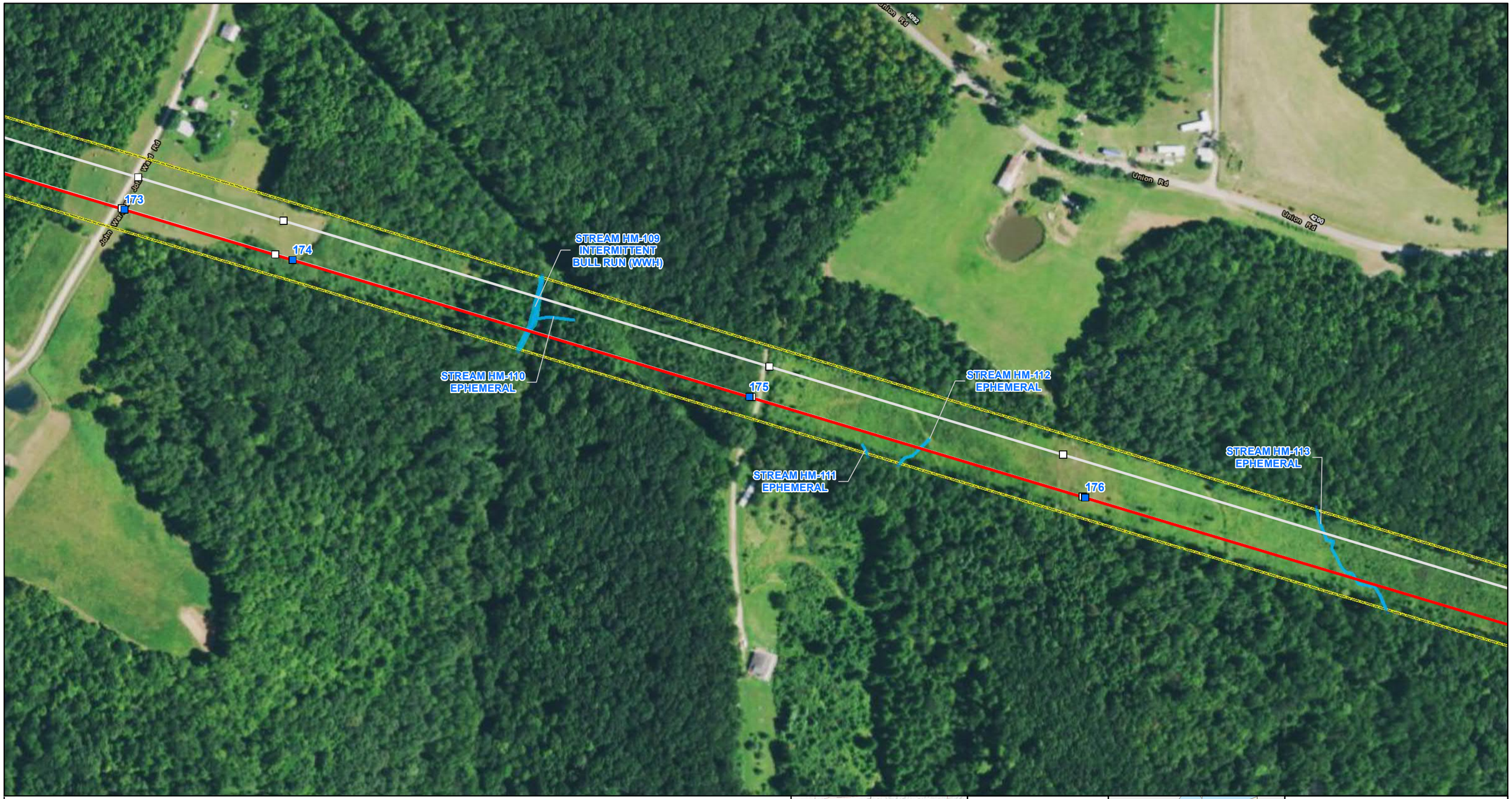
May 07, 2021



Figure 3-45
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-46
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

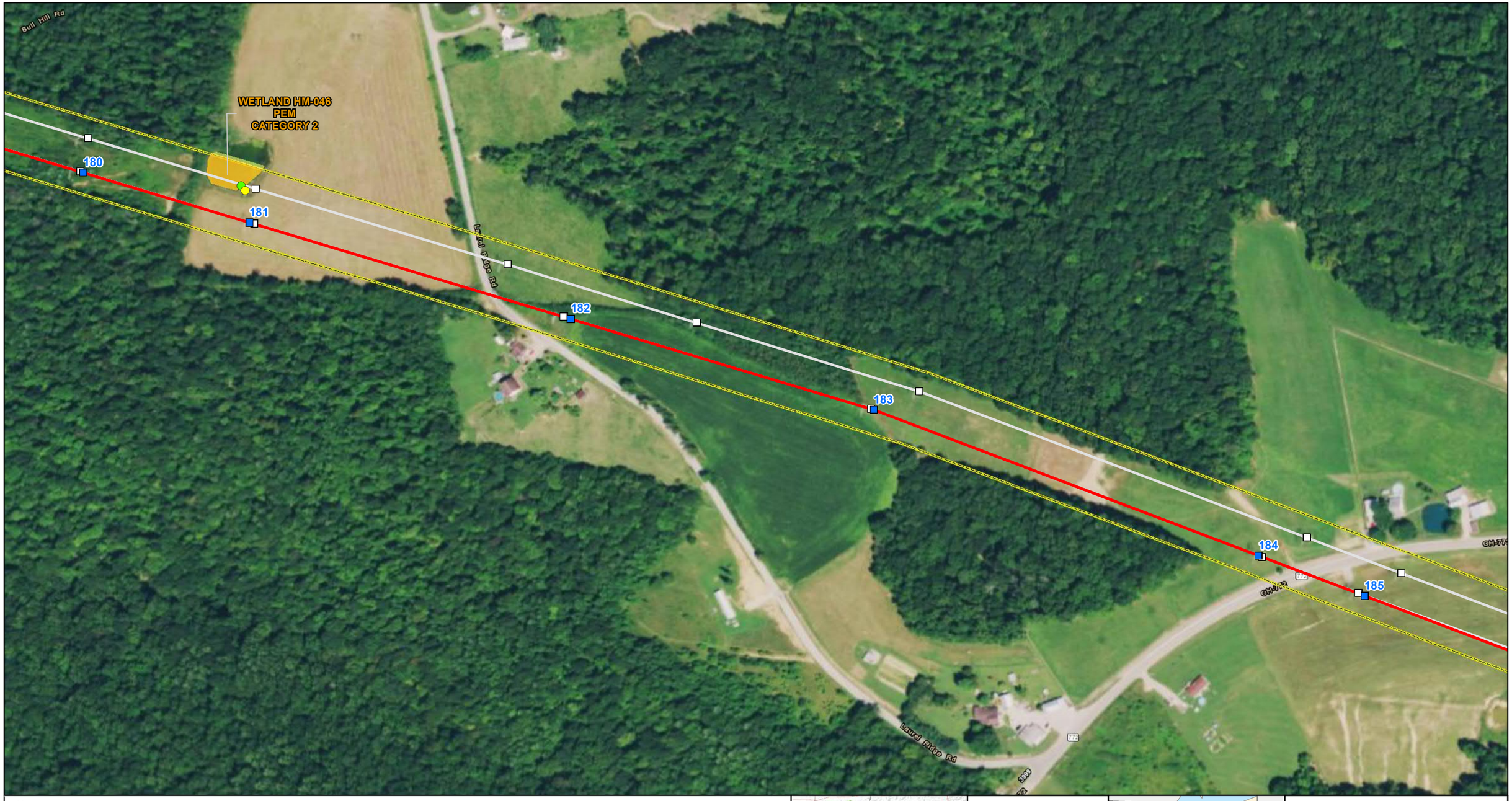
May 07, 2021



Figure 3-47
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

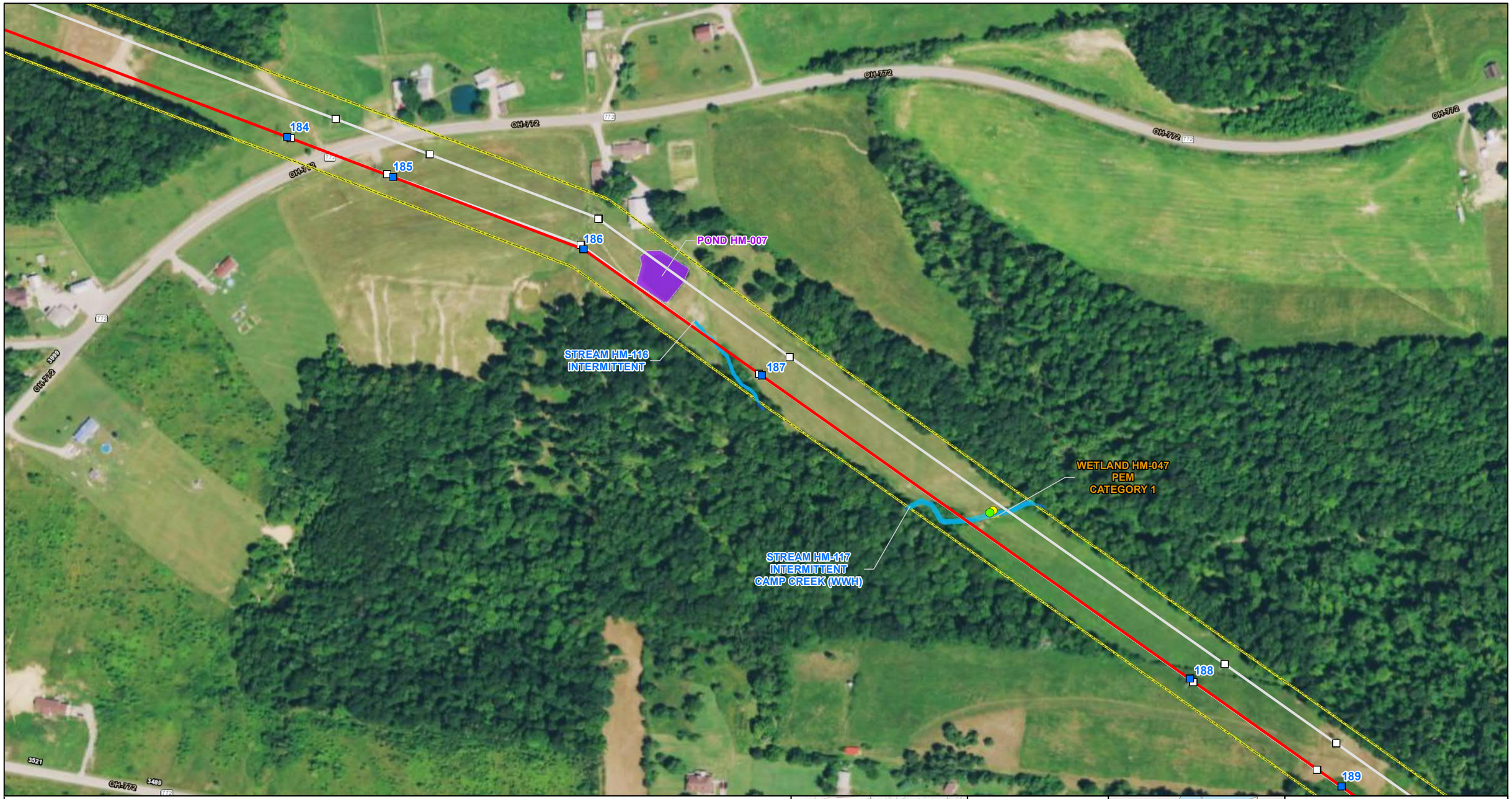
May 07, 2021



Figure 3-48
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-49
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

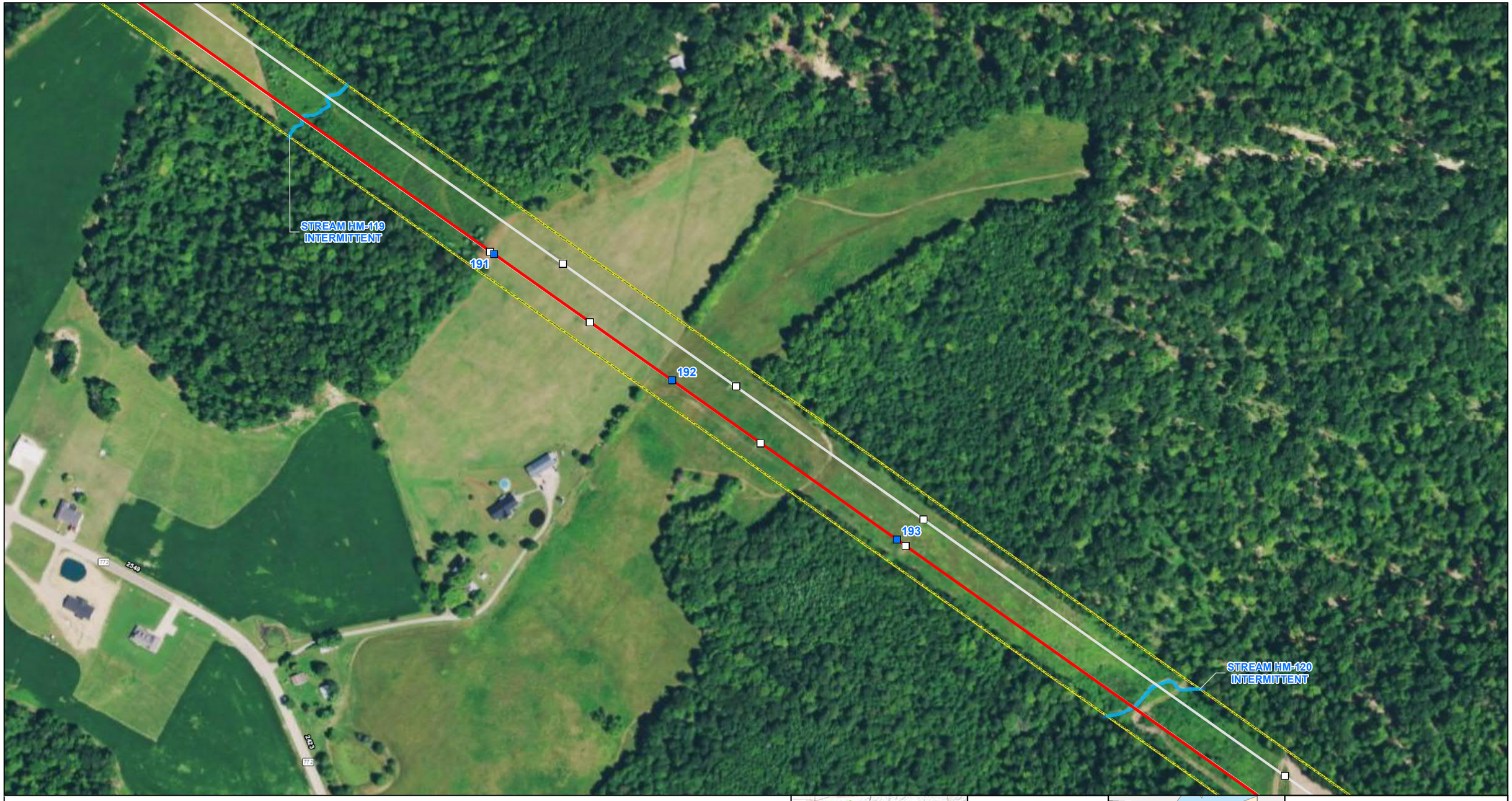
May 07, 2021



Figure 3-50
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-51
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

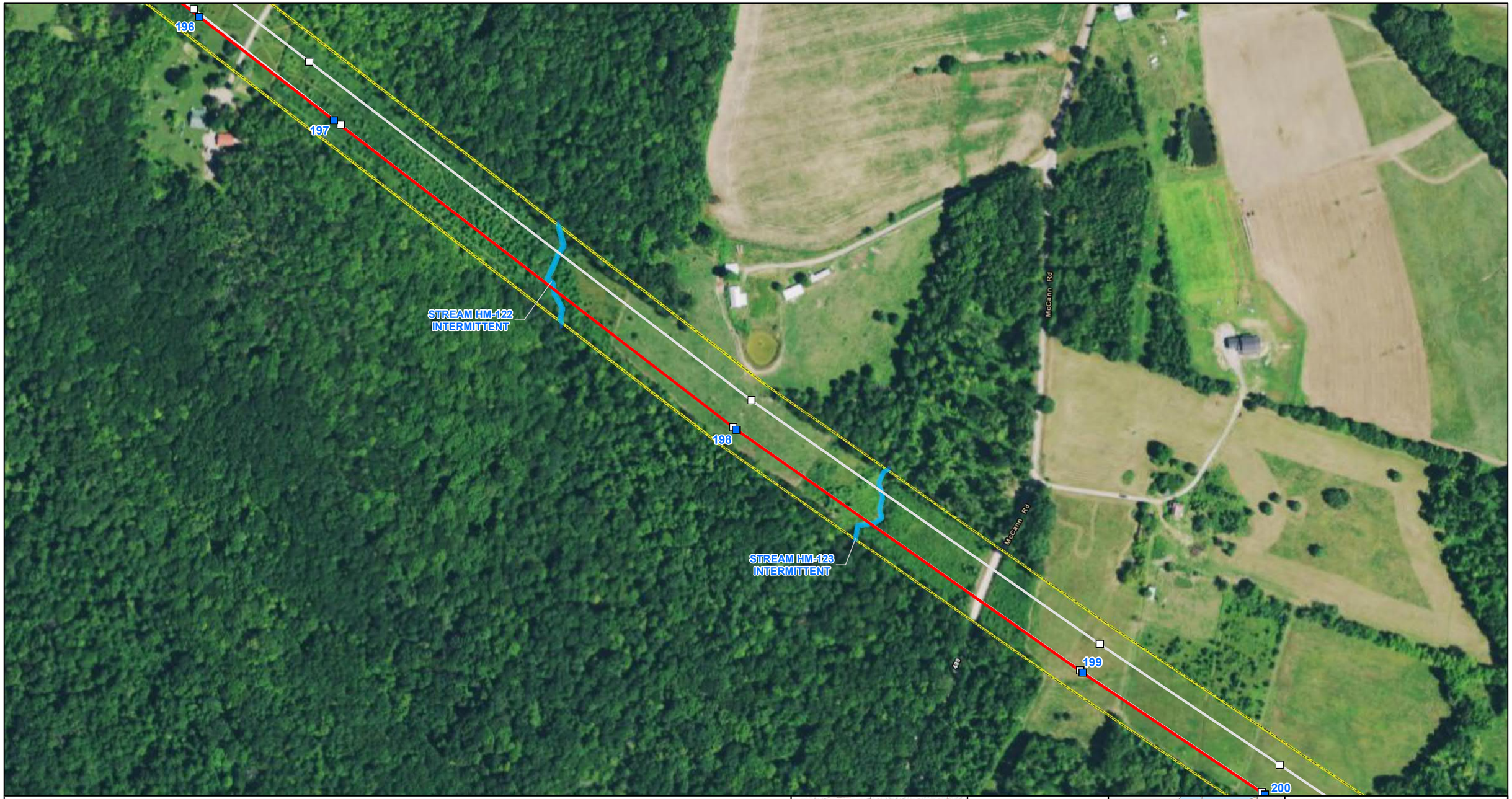
May 07, 2021



Figure 3-52
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-53
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

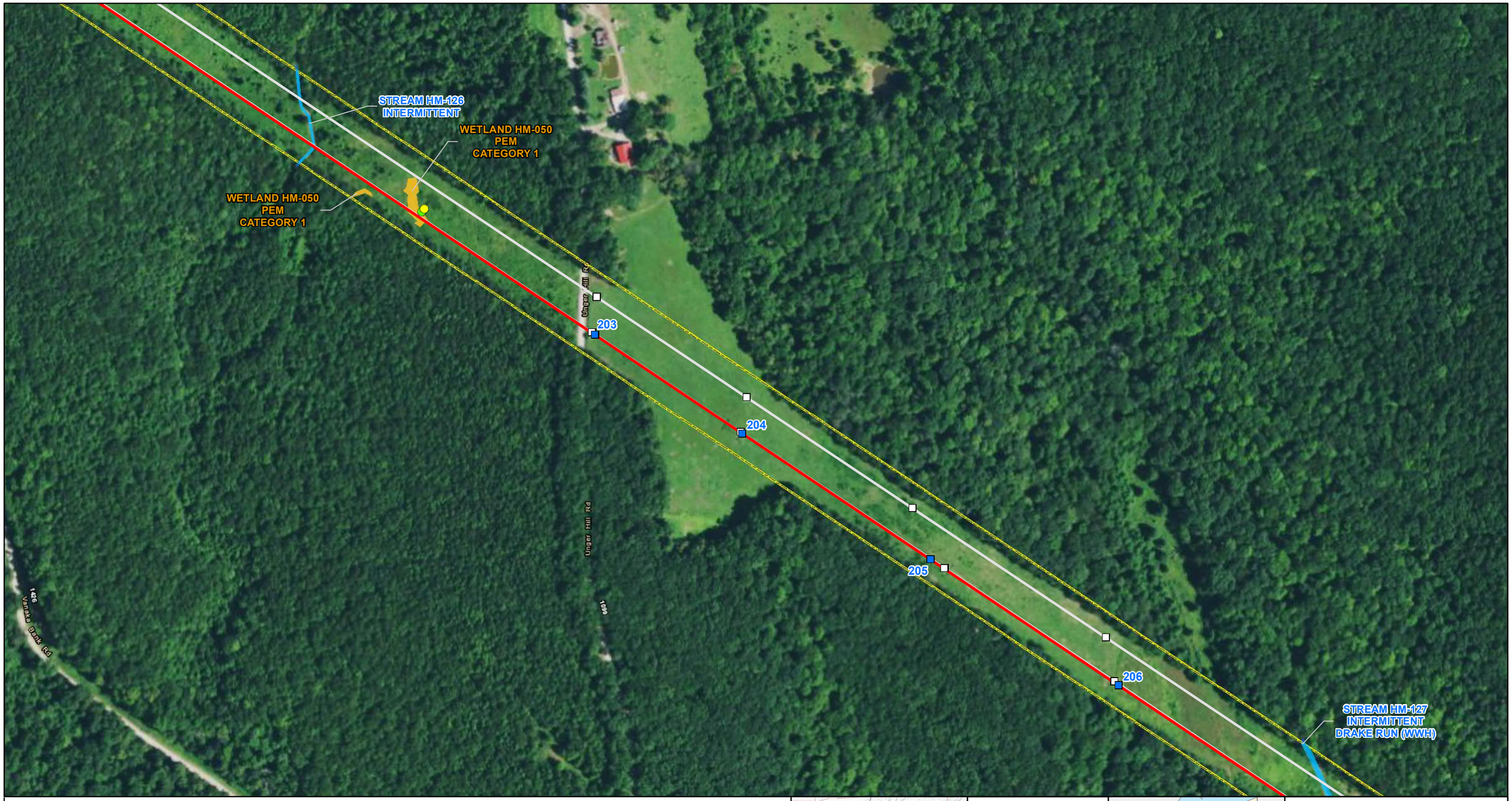
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Figure 3-54
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

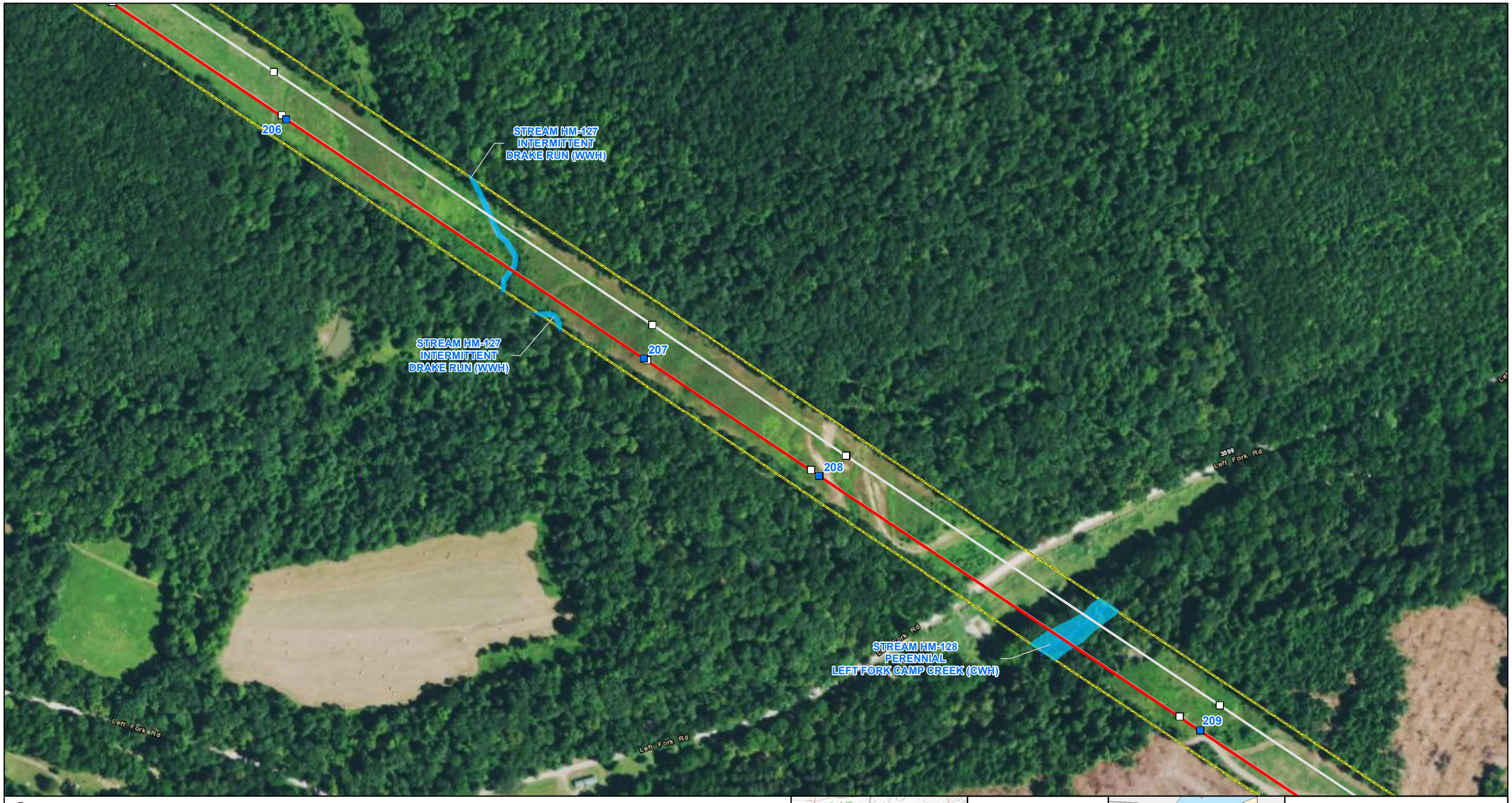
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Figure 3-55
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-56
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-57
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

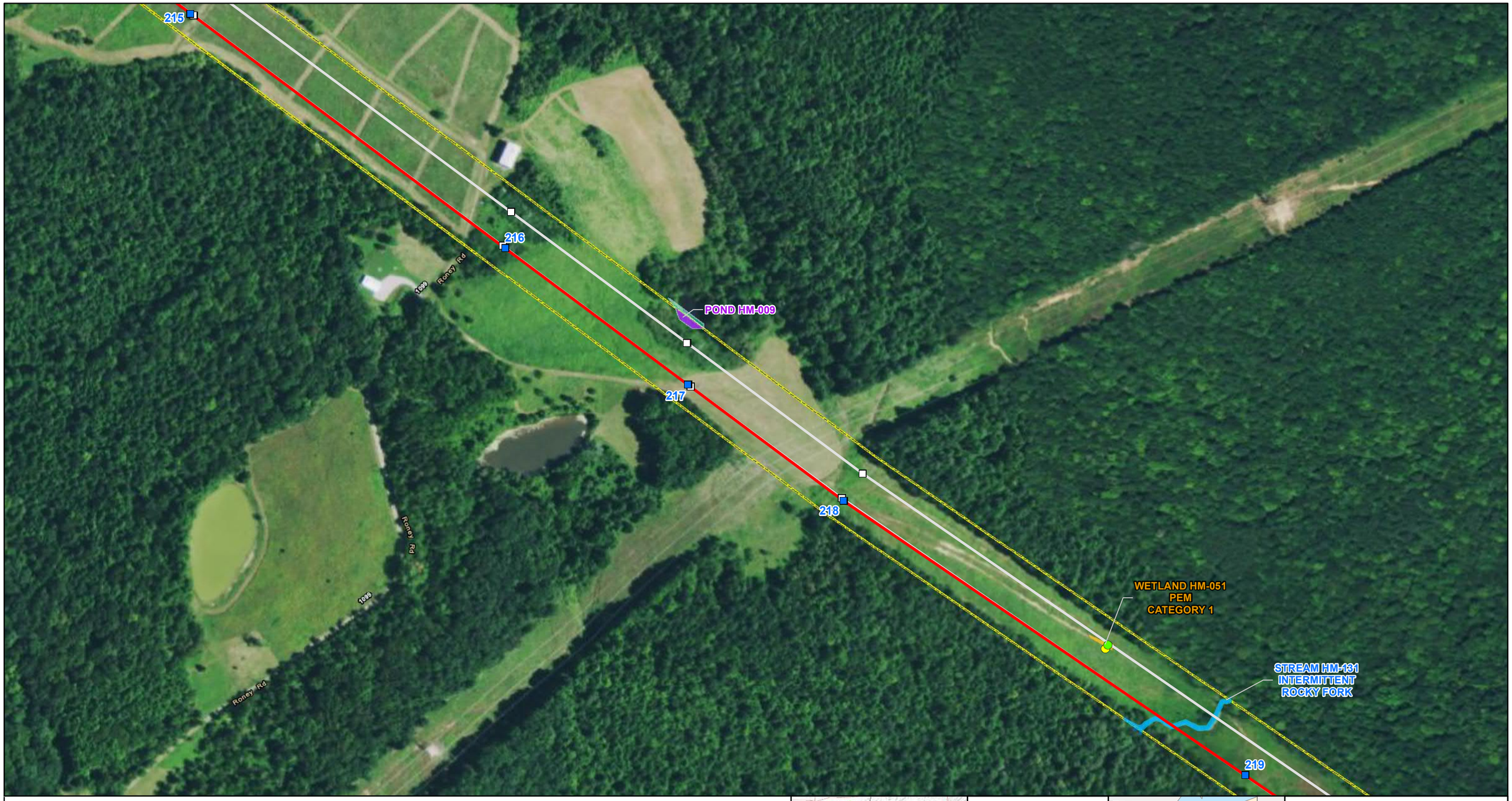
May 07, 2021



Figure 3-58
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-59
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
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- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-60
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
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- Delineated Pond
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

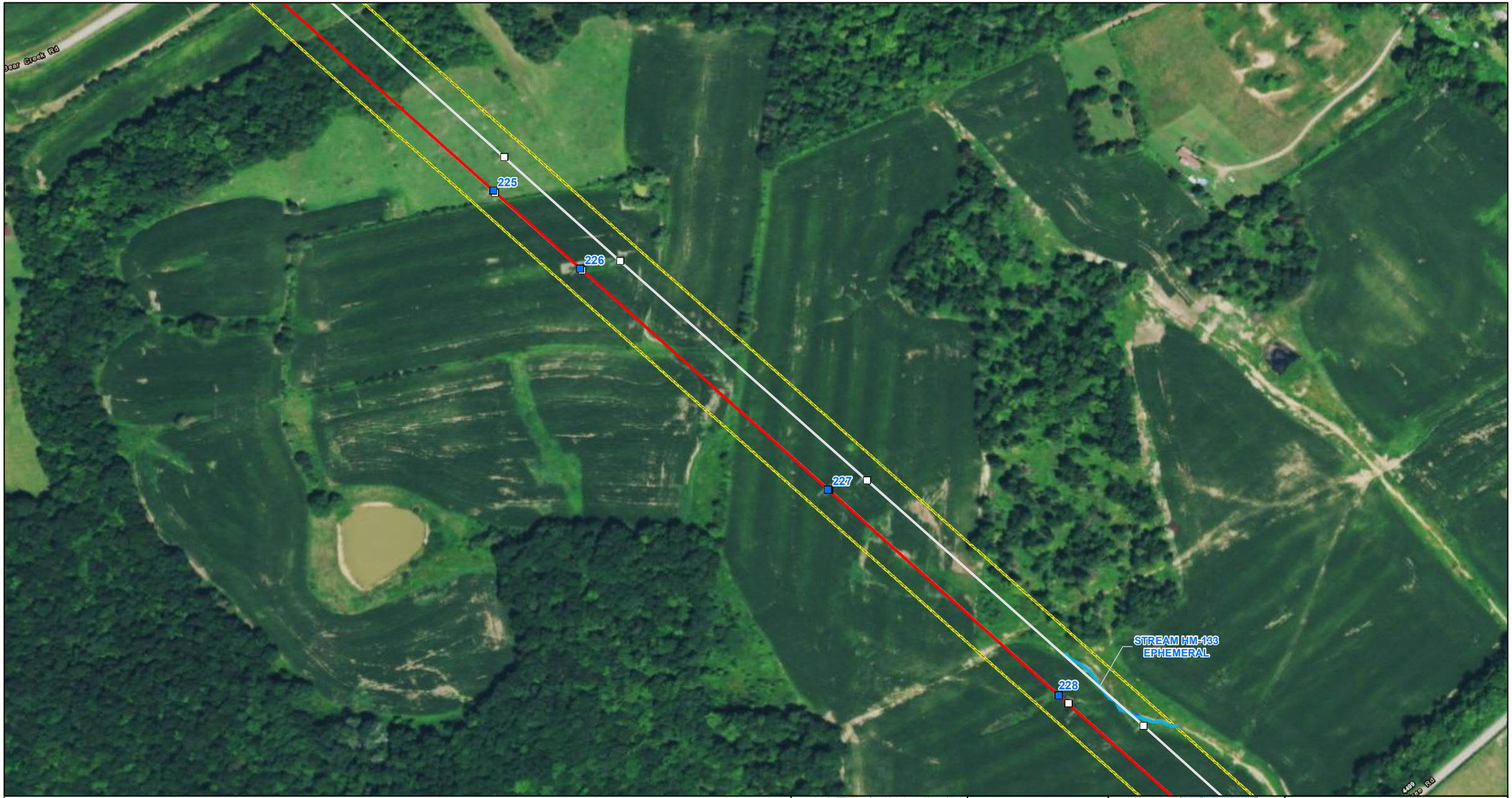
May 07, 2021



Figure 3-61
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

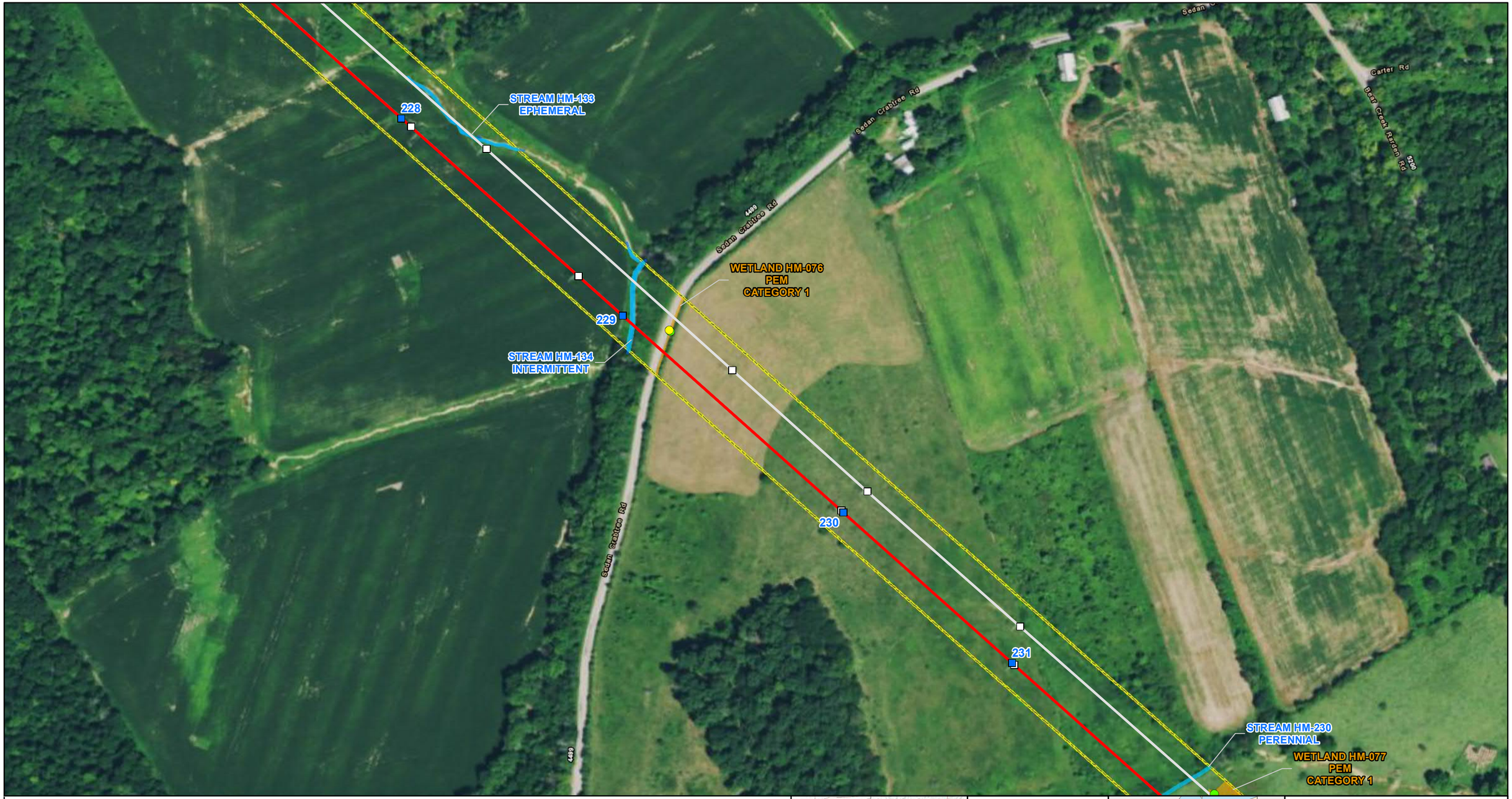
May 07, 2021



Figure 3-62
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
- Delineated Stream
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- Delineated Pond
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

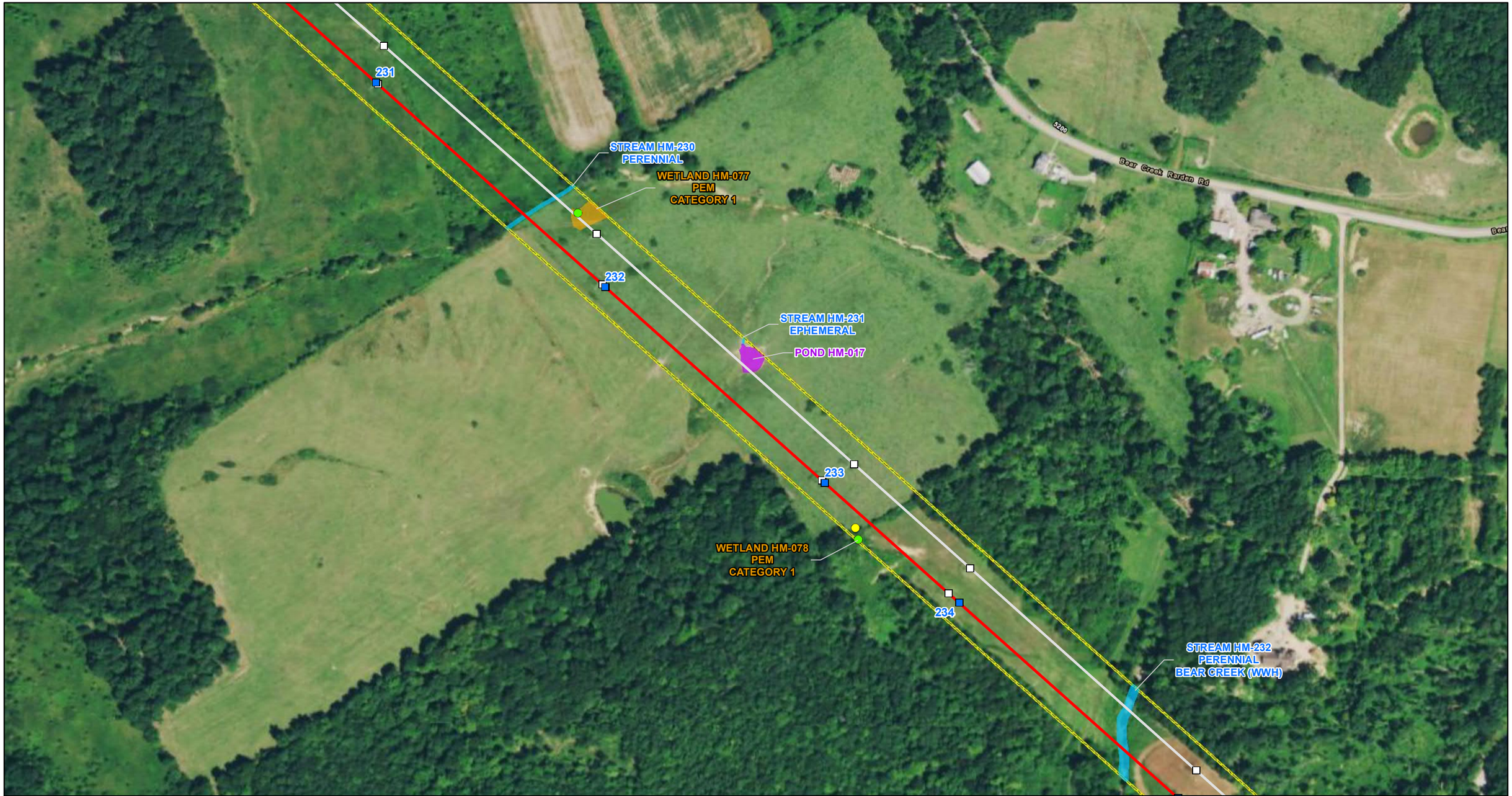
May 07, 2021



Figure 3-63
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
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- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

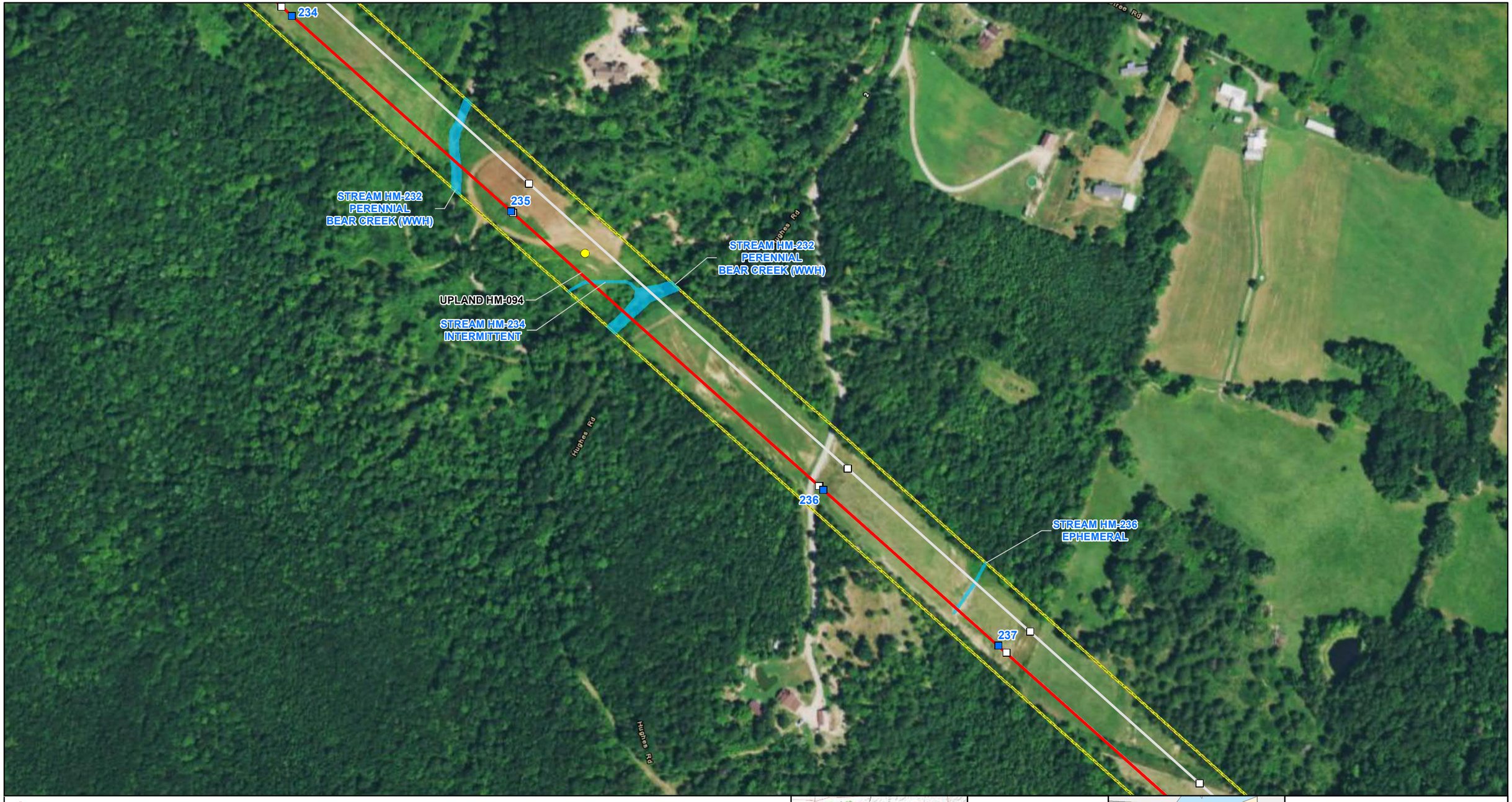
May 07, 2021



Figure 3-64
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
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- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-65
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-66
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-67
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-68
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-69
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

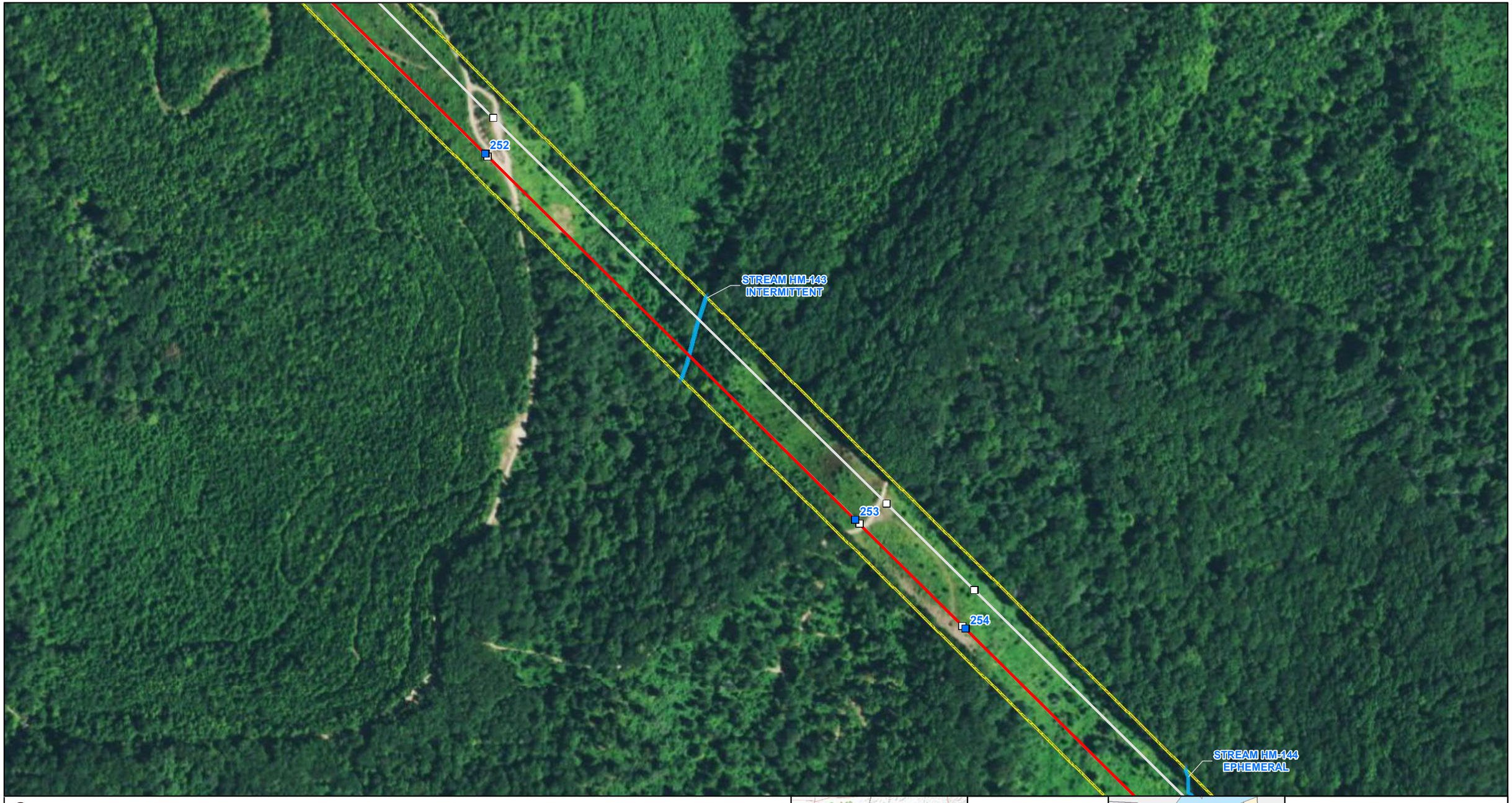
May 07, 2021



Figure 3-70
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-71
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
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- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-72
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

STREAM HM-146
EPHEMERAL

257

STREAM HM-147
EPHEMERAL

STREAM HM-148
EPHEMERAL

STREAM HM-150
PERENNIAL
BIG RUN (WWH)

Big Run Rd

STREAM HM-149
EPHEMERAL

WETLAND HM-056
PEM
CATEGORY 1

STREAM HM-151
EPHEMERAL

258

STREAM HM-151
EPHEMERAL

STREAM HM-152
INTERMITTENT

STREAM HM-153
EPHEMERAL

WETLAND HM-057
PEM
CATEGORY 1

STREAM HM-153
EPHEMERAL

WETLAND HM-058
PEM
CATEGORY 1

259

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-73
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-74
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
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- Upland Data Point
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

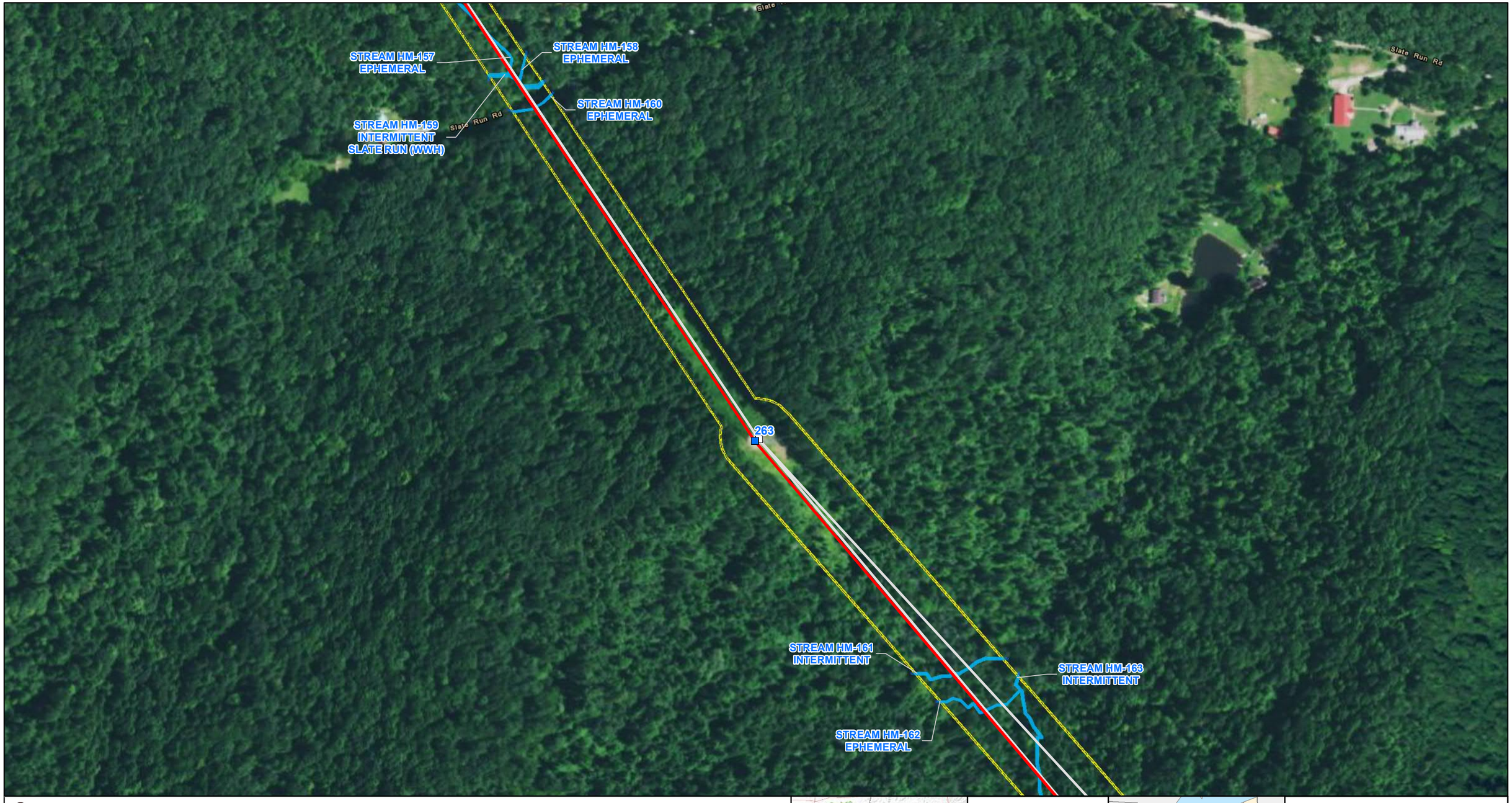
May 07, 2021



Figure 3-75
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

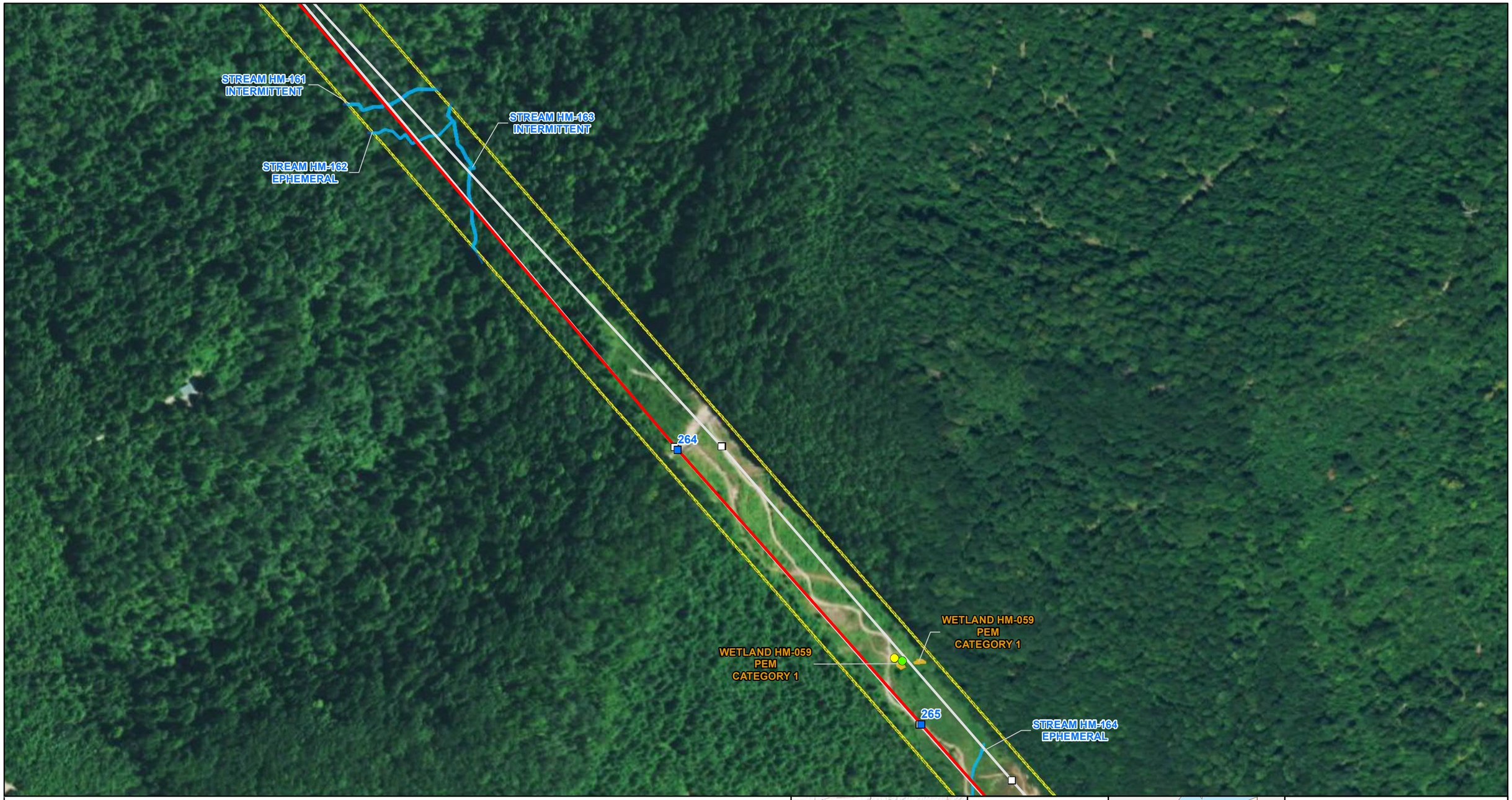
May 07, 2021



Figure 3-76
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-77
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
- Delineated Stream
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

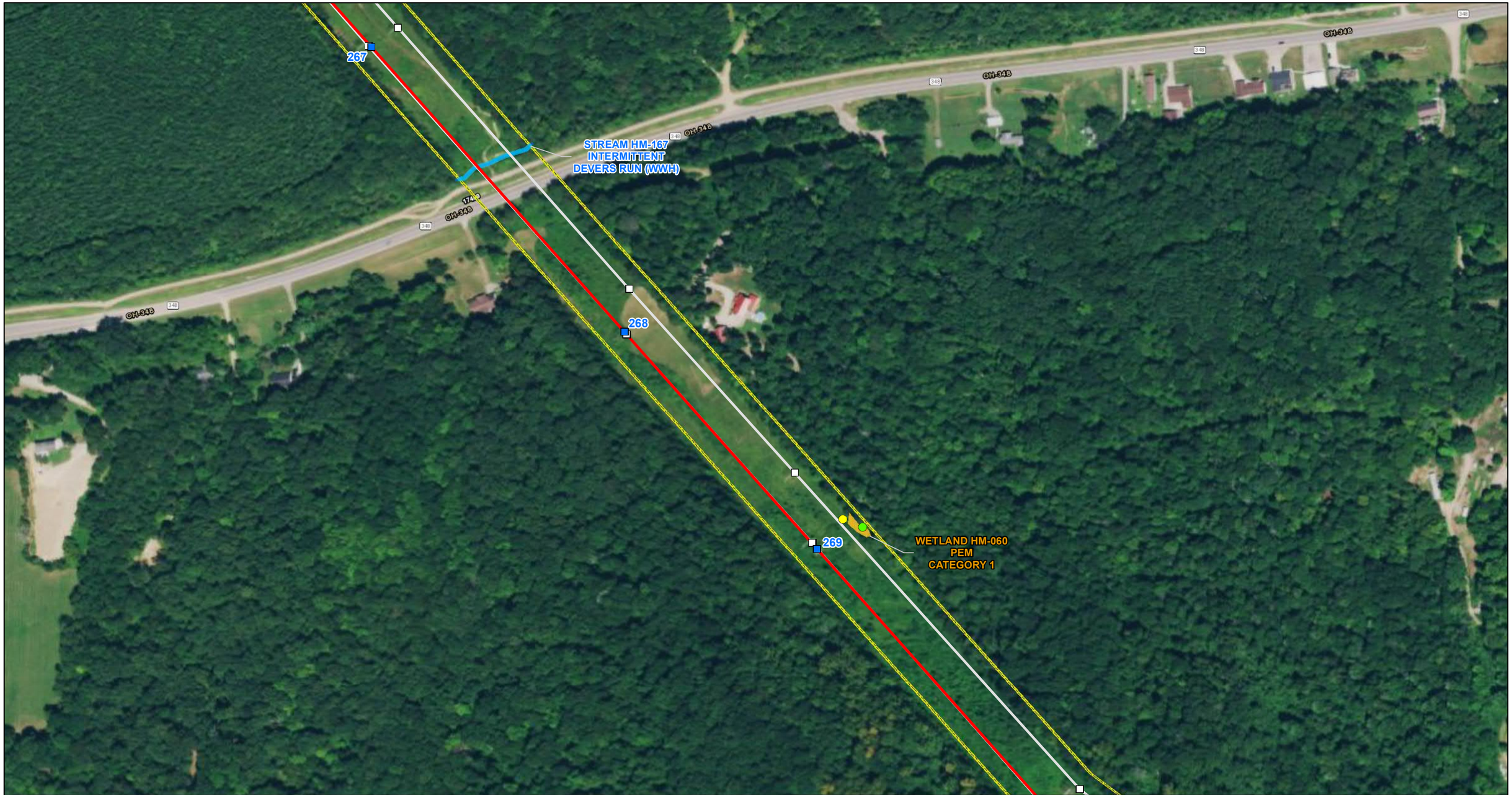
May 07, 2021



Figure 3-78
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
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- Wetland Data Point
- Upland Data Point
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-79
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
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- Upland Data Point
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-80
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

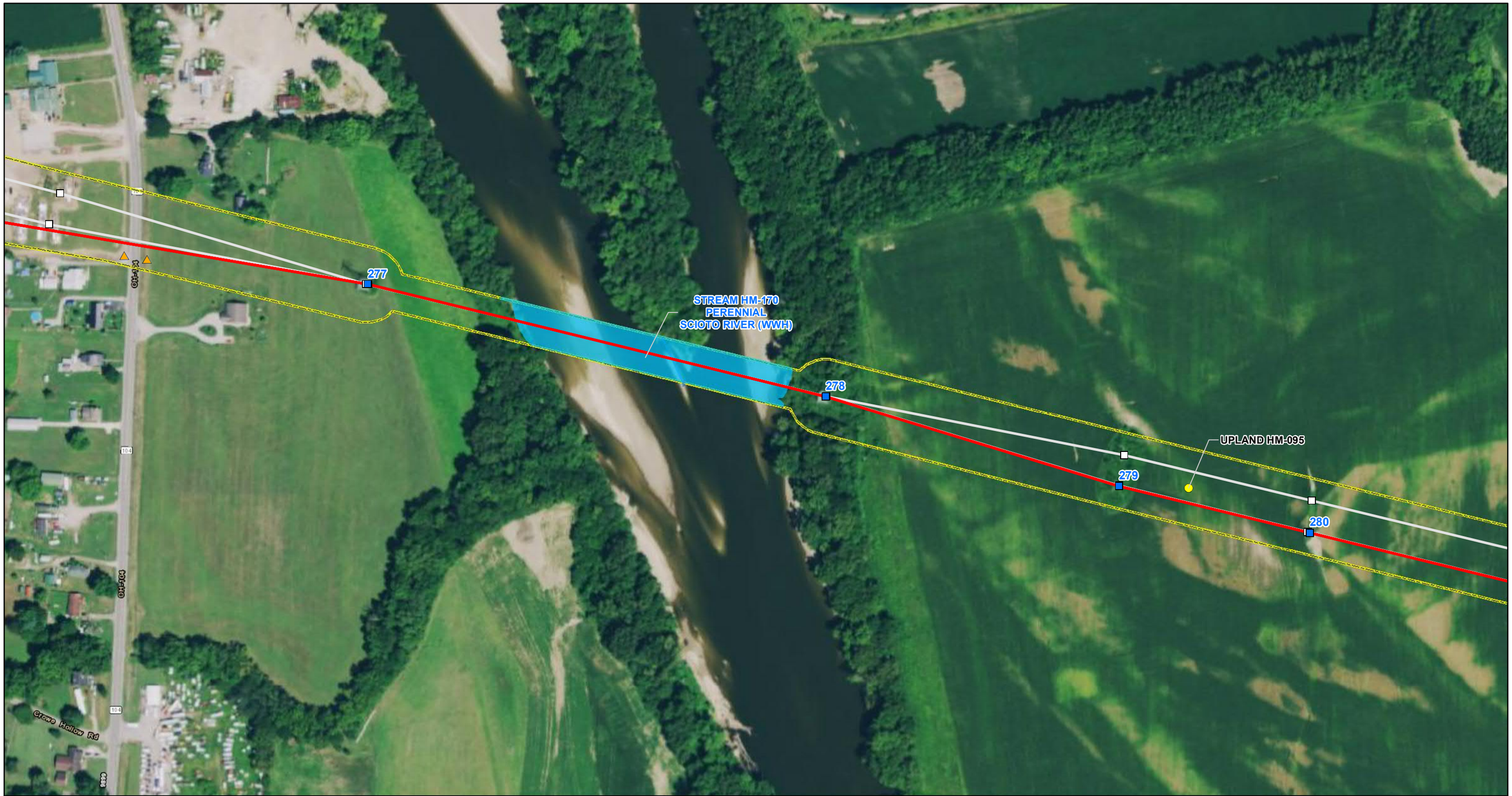
May 07, 2021



Figure 3-81
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
- Delineated Stream
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- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

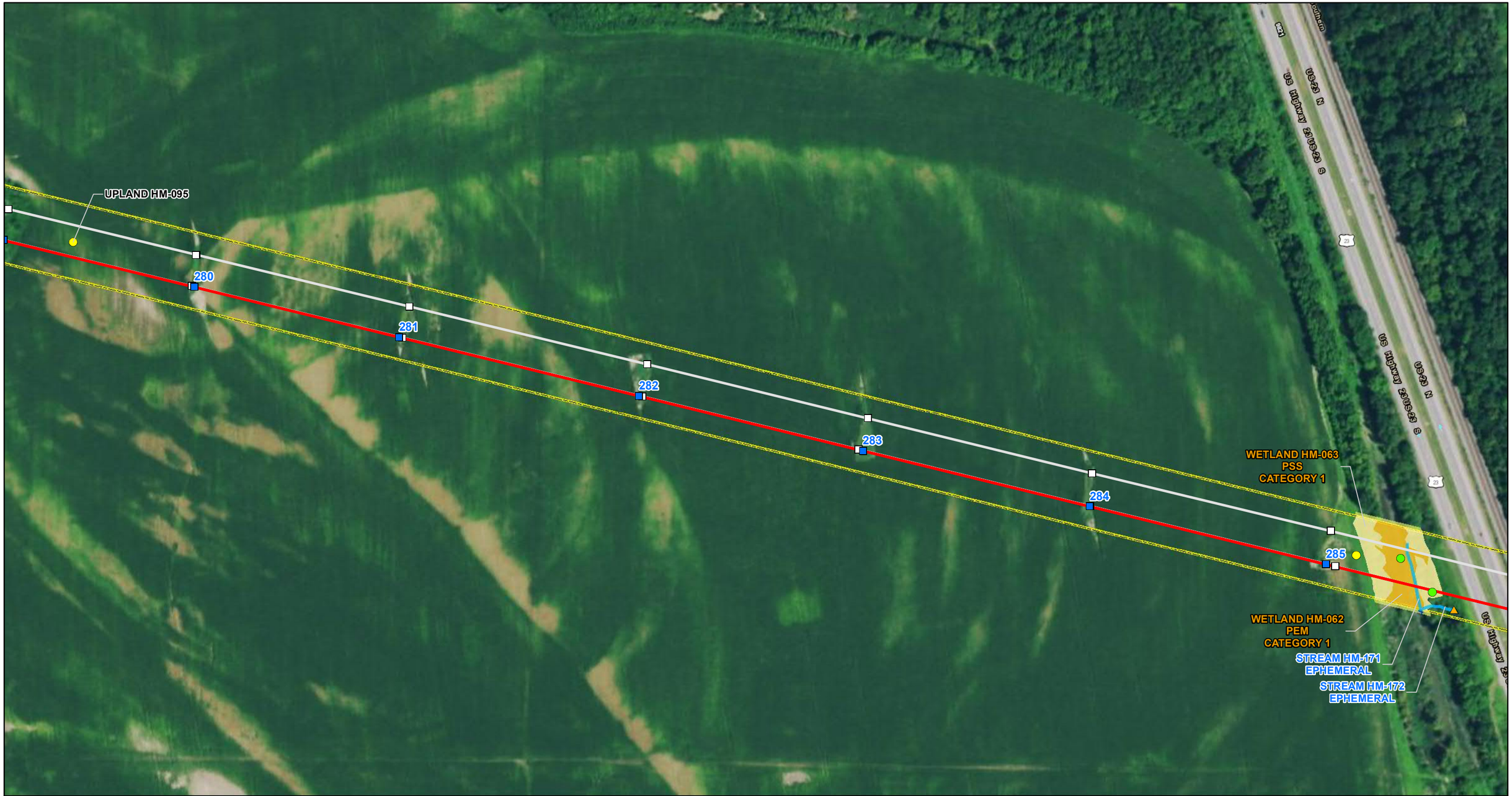
May 07, 2021



Figure 3-82
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

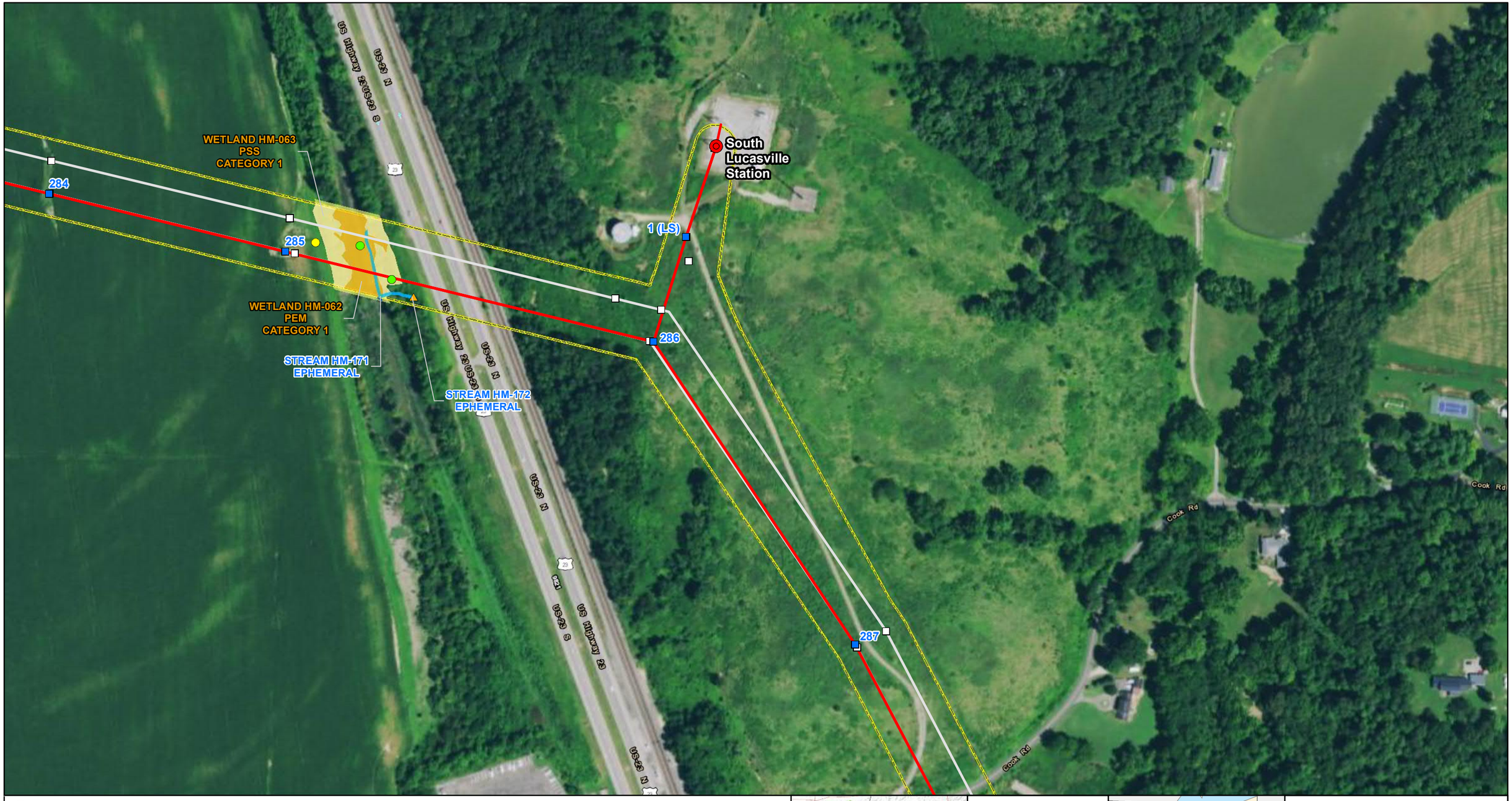
May 07, 2021



Figure 3-83
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

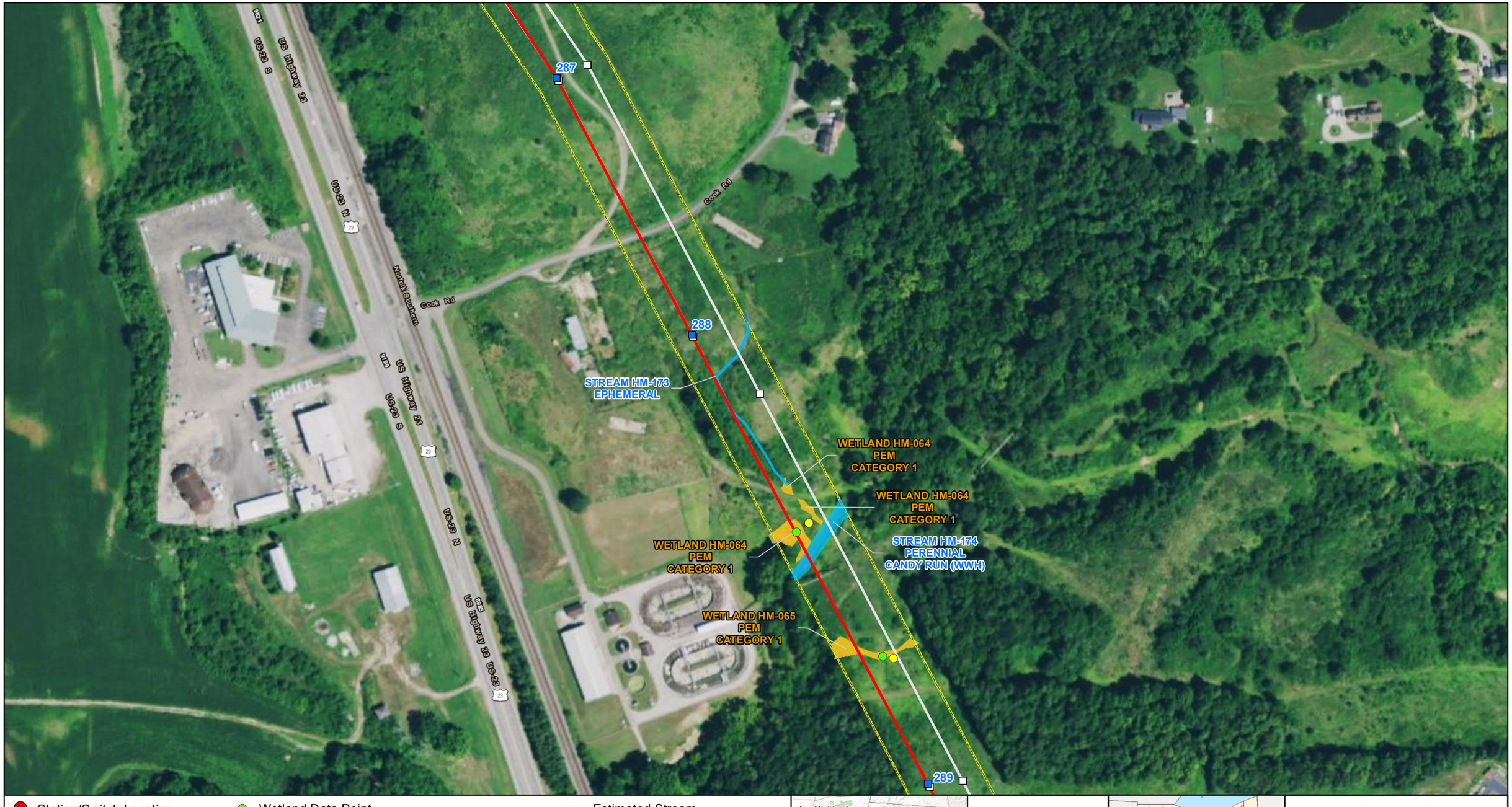
May 07, 2021



Figure 3-84
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-85
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet


STREAM HM-174
PERENNIAL
CANDY RUN (WWH)
WETLAND HM-065
PEM
CATEGORY 1
289
290
291
STREAM HM-175
INTERMITTENT
STREAM HM-176
INTERMITTENT
WETLAND HM-066
PEM
CATEGORY 2
WETLAND HM-066
PEM
CATEGORY 2
US Highway 23
US Highway 23
US Highway 23
Yum Rifle Dr
Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor
Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond
Estimated Stream
Estimated Wetland
Estimated Pond
Highland
Pike
Adams
Scioto
Shawnee State
Base Map Source:
National Agriculture
Imagery Program
Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983
May 07, 2021
OHIO
Project Location
Highland County
Pike County
Adams County
Scioto County
Figure 3-86
Delineated Features Map
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project
0
200
400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-87
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
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- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-88
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Wetland Data Point
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

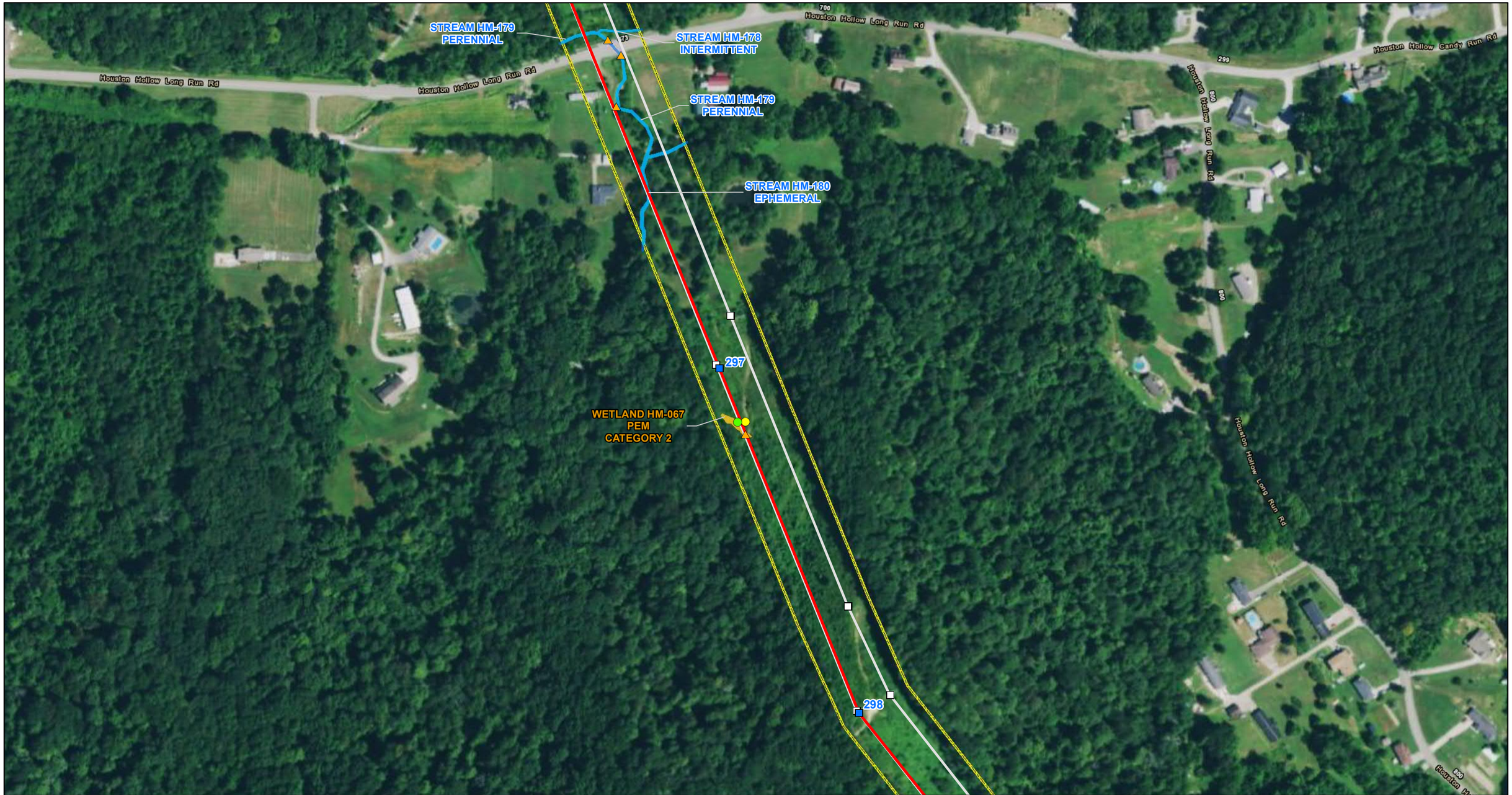
May 07, 2021



Figure 3-89
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Estimated Stream
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



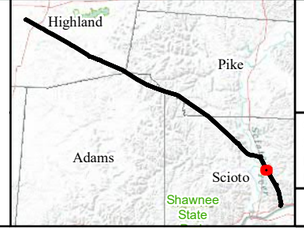
Figure 3-90
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-91
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Delineated Pond
- Estimated Stream
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-92
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-93
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
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- Existing Structures
- Culvert
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
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Datum: NAD 1983

May 07, 2021



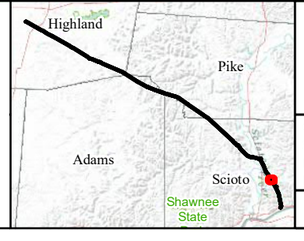
Figure 3-94
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
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- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



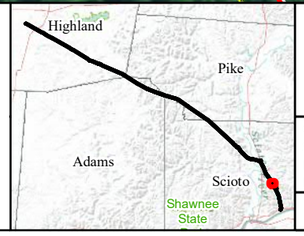
Figure 3-95
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
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- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-96
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-97
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
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- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
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May 07, 2021



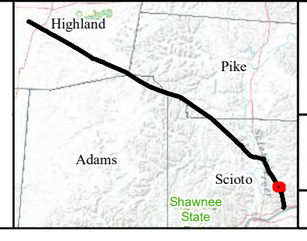
Figure 3-98
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Delineated Palustrine Scrub-Shrub Wetland (PSS)
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- Estimated Stream
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- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-99
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

315B
316
317
STREAM HM-198
EPHEMERAL
STREAM HM-199
EPHEMERAL
STREAM HM-200
INTERMITTENT
STREAM HM-201
INTERMITTENT
Carver Ridge Rd
Hinkley Hollow Rd
598

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
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- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



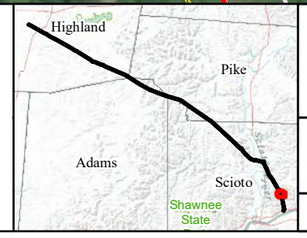
Figure 3-100
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-101
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-102
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-103
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet


322
323
324
STREAM HM-207
EPHEMERAL
STREAM HM-208
EPHEMERAL
STREAM HM-209
EPHEMERAL
Sherralou Dr
Hinkley Hollow Rd
Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor
Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond
Estimated Stream
Estimated Wetland
Estimated Pond
Highland
Pike
Adams
Scioto
Shawnee State
Base Map Source:
National Agriculture
Imagery Program
Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983
May 07, 2021
OHIO
Project Location
Highland County
Pike County
Adams County
Scioto County
Figure 3-104
Delineated Features Map
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project
0
200
400
Feet



Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor

Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond

Estimated Stream
Estimated Wetland
Estimated Pond



Base Map Source:
National Agriculture
Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-105
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet


326
STREAM HM-210
EPHEMERAL
327
328
329
Dunlap Rd
Dunlap Rd
Dunlap Rd
Center Dr
Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor
Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond
Estimated Stream
Estimated Wetland
Estimated Pond
Highland
Pike
Adams
Scioto
Shawnee State
Base Map Source:
National Agriculture Imagery Program
Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983
May 07, 2021
OHIO
Project Location
Highland County
Pike County
Adams County
Scioto County
Figure 3-106
Delineated Features Map
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project
0
200
400
Feet



- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
- Environmental Survey Corridor
- Wetland Data Point
- Upland Data Point
- Delineated Stream
- Delineated Palustrine Emergent Wetland (PEM)
- Delineated Palustrine Scrub-Shrub Wetland (PSS)
- Delineated Pond
- Estimated Stream
- Estimated Wetland
- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021

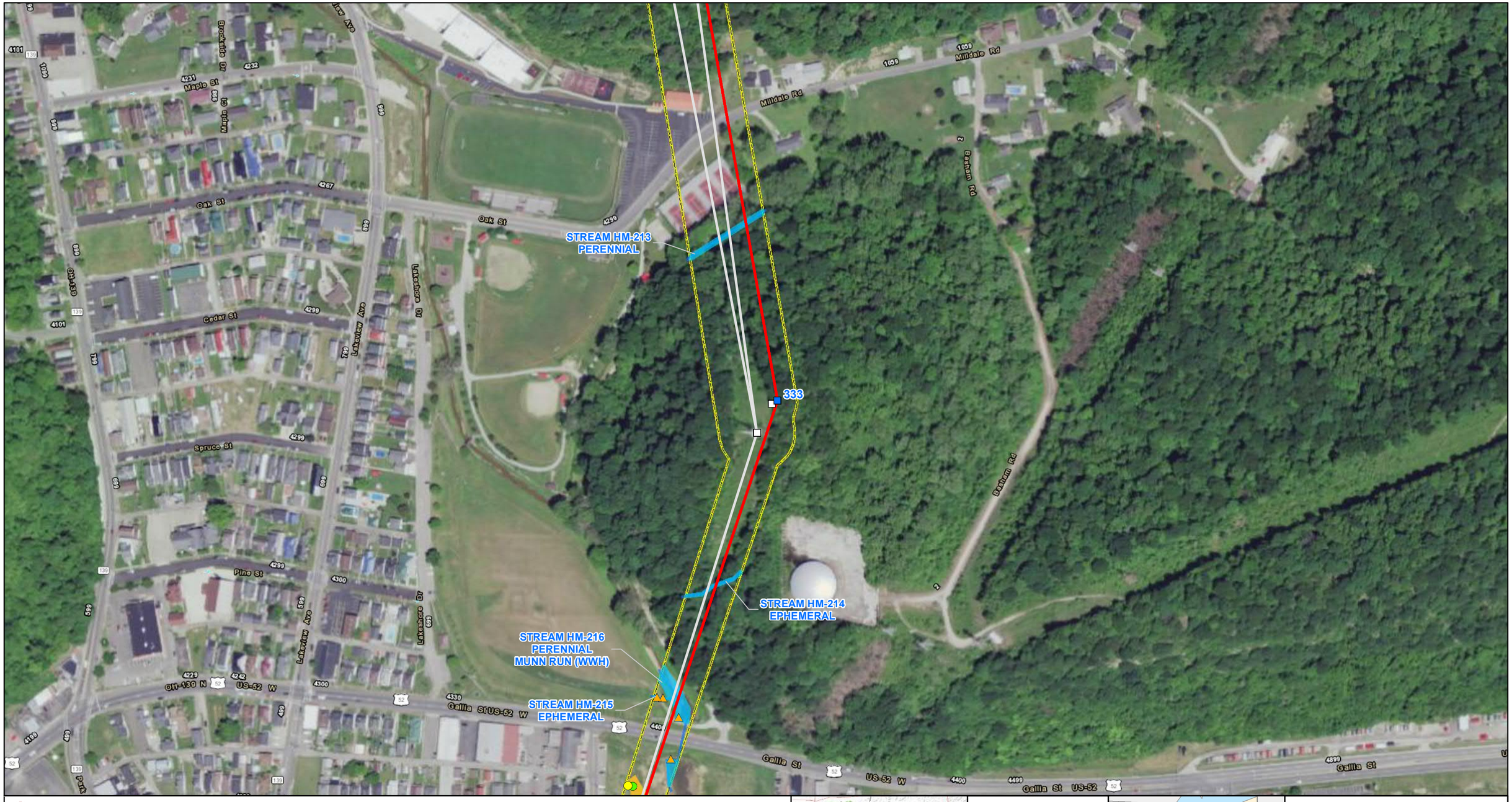


Figure 3-107
Delineated Features Map

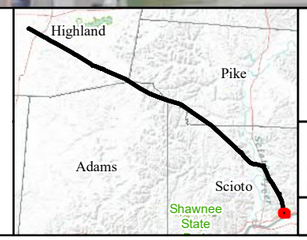
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet


331
332
STREAM HM-212
EPHEMERAL
Terrace St
Amer St
Valley St
Lakeview Ave
5th St
Columbia St
York St
Pennsylvania Ave
Monroe St
Brookside Dr
Maple St
Oak St
Millsdale Rd
Dunlap Rd
Beasham Rd
Station/Switch Location
Proposed Structures
Existing Structures
Culvert
Routes
Existing Transmission Lines
Environmental Survey Corridor
Wetland Data Point
Upland Data Point
Delineated Stream
Delineated Palustrine Emergent Wetland (PEM)
Delineated Palustrine Scrub-Shrub Wetland (PSS)
Delineated Pond
Estimated Stream
Estimated Wetland
Estimated Pond
Highland
Pike
Adams
Scioto
Shawnee State
Base Map Source:
National Agriculture
Imagery Program
Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983
May 07, 2021
OHIO
Project Location
Highland County
Pike County
Adams County
Scioto County
Figure 3-108
Delineated Features Map
Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project
0
200
400
Feet



- Station/Switch Location
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- Existing Structures
- Culvert
- Routes
- Existing Transmission Lines
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- Upland Data Point
- Delineated Stream
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- Delineated Pond
- Estimated Stream
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- Estimated Pond



Base Map Source:
National Agriculture Imagery Program

Coordinate System:
State Plane Ohio South
FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-109
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

STREAM HM-215
EPHEMERAL

STREAM HM-216
PERENNIAL
MUNN RUN (WWH)

STREAM HM-216
PERENNIAL
MUNN RUN (WWH)

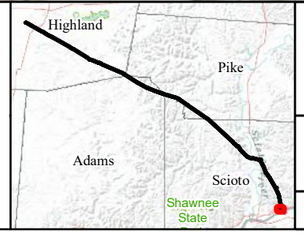
WETLAND HM-070
PEM
CATEGORY 1

334

Millbrook
Park Station

OH-139 N
US-52 W
Gallia St US-52 W
W Gallia St US-52
OH-139 S US-52 E
Ohio River Scenic Bywy US-52 E
Millbrook Ave
Hill St
Park Ave
Lakeview Ave
Glenwood Ave
Center St
Station Ave
Gallia St
Norfolk Southern

- Station/Switch Location
- Proposed Structures
- Existing Structures
- Culvert
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- Estimated Wetland
- Estimated Pond



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Imagery Program

Coordinate System:
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FIPS 3402 (US Feet)
Datum: NAD 1983

May 07, 2021



Figure 3-110
Delineated Features Map

Hillsboro to Millbrook Park
138 kV Transmission Line
Rebuild Project

0 200 400
Feet

Appendix A
U.S. Army Corps of Engineers (USACE) Wetland Determination Forms – Midwest and Eastern Mountains & Piedmont Regions

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/16/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-001

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 9087

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

Slope (%): 5 Lat: 39.17219 Long: -83.67515893833334 Datum: WGS 84

Soil Map Unit Name: Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
PEM hillside seep wetland. Soils are very dark--organic material likely masking redox concentrations. Very strong vegetation and hydrology indicators confirm wetland status.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	8	Y	FACW
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	60	Y	OBL
2. Impatiens capensis	45	Y	FACW
3. Lobelia siphilitica	5	N	OBL
4. Carex lurida	30	N	OBL
5. Acorus americanus	20	N	OBL
6.			
7.			
8.			
9.			
10.			
	160	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	53	x 2 =	106
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	168 (A)		221 (B)

Prevalence Index = B/A = 1.32

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-001

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 2/2	100	/				Silt	Organic
2 - 10	10YR 2/1	100	/				Silt	Organic
10 - 16	2.5Y 4/1	98	10YR 4/6	2	C	M	Silt	Restrictive gravel layer at 16 in.
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): Yes

Type: Gravel

Depth (inches): 16

Hydric Soil Present? Yes X No _____

Remarks:

Very dark soils. Organic material likely masking redox concentrations in the upper 10 inches.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 6.00

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-001



North



South



East



West

Soil Photos: Wetland HM-001



WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/17/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-002

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2511

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

Slope (%): 1 Lat: 39.16556 Long: -83.65913537566666 Datum: WGS 84

Soil Map Unit Name: Hickory silt loam, Illinoian Till Plain, 12 to 18 percent slopes, eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
Data point for Wetland HM-002 (W-MJA-091719-01). This is a PEM situated under the T-Line ROW, surrounded by young forest and shrub/scrub.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Impatiens capensis	20	N	FACW
2. Dichanthelium clandestinum	5	N	FACW
3. Onoclea sensibilis	1	N	FACW
4. Carex lurida	30	Y	OBL
5. Pilea pumila	8	N	FACW
6. Symphyotrichum novae-angliae	3	N	FACW
7. Leersia oryzoides	60	Y	OBL
8.			
9.			
10.			
	127	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	37	x 2 =	74
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	127 (A)		164 (B)

Prevalence Index = B/A = 1.29

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-002

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 10	10YR 4/2	85	5YR 4/6	15	C	PL	Silty loam	Prominent Redox Concentrations
10 - 18	2.5Y 5/2	75	5YR 4/6	25	C	PL	Clay loam	Prominent Redox Concentrations
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-002



North



South



East



West

Soil Photos: Wetland HM-002



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/18/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-003

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2511

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

Slope (%): 10 Lat: 39.16048 Long: -83.64724102633333 Datum: WGS 84

Soil Map Unit Name: Hickory silt loam, 18 to 25 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Data point for W-MJA-091819-01. PSS hillside seep wetland. Soils are very dark--organic material likely masking redox concentrations. Very strong vegetation and hydrology indicators confirm wetland status

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix sericea	45	Y	OBL
2.			
3.			
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Carex lurida	65	Y	OBL
2. Caltha palustris	20	N	OBL
3. Eupatorium perfoliatum	10	N	OBL
4. Schoenoplectus tabernaemontani	3	N	OBL
5. Symphyotrichum novae-angliae	5	N	FACW
6.			
7.			
8.			
9.			
10.			
	103	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	143	x 1 =	143
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	148 (A)		153 (B)

Prevalence Index = B/A = 1.03

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-003

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 2/1	100	/				Silt	Some grit
6 - 18	10YR 3/1	100	/				Silt	Some grit
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Very dark soils. Organic material likely masking redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 10.00

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Hillside seep.

General Site Photos Wetland HM-003



North



South



East



West

Soil Photos:	Wetland HM-003



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/18/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-004

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2511

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

Slope (%): 3 Lat: 39.15955 Long: -83.64549560350001 Datum: WGS 84

Soil Map Unit Name: Negley loam, 6 to 12 percent slopes NWI classification: N/A

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

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

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 X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
Data point for W-MJA-091819-02. A PEM hillside seep wetland. The soils were very dark--organic material may be masking redox features.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Pedicularis lanceolata	15	N	OBL
2. Solidago patula	5	N	OBL
3. Eupatorium perfoliatum	20	N	OBL
4. Scirpus atrovirens	40	Y	OBL
5. Carex lurida	55	Y	OBL
6. Leersia oryzoides	15	N	OBL
7. Mimulus ringens	3	N	OBL
8. Schoenoplectus tabernaemontani	1	N	OBL
9. Typha latifolia	3	N	OBL
10. Juncus tenuis	20	N	FAC
	159	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	139	x 1 =	139
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	159 (A)		199 (B)

Prevalence Index = B/A = 1.25

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-004

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 2/1	100					Silt	Organic, some grit
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Very dark. Organic material may be masking redox features.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 8.00

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Hillside seep.

General Site Photos Wetland HM-004



North



South



East



West

Soil Photos: Wetland HM-004



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/19/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-005

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2512

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

Slope (%): 2 Lat: 39.15649625 Long: -83.63843126083333 Datum: WGS 84

Soil Map Unit Name: Negley loam, 18 to 25 percent slopes NWI classification: N/A

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

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

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 X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
PEM with water coming from stream and hillside seep

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix sericea	8	Y	OBL
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	55	Y	OBL
2. Carex lurida	30	Y	OBL
3. Carex tribuloides	10	N	OBL
4. Scirpus atrovirens	20	N	OBL
5. Impatiens capensis	15	N	FACW
6. Carex vulpinoidea	5	N	FACW
7. Eupatorium perfoliatum	3	N	OBL
8. Onoclea sensibilis	1	N	FACW
9.			
10.			
	139	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	118	x 1 =	118
FACW species	21	x 2 =	42
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	139 (A)		160 (B)

Prevalence Index = B/A = 1.15

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-005

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 3/2	95	5YR 4/4	5	C	M	Silty loam	Prominent Redox Concentrations
4 - 18	10YR 5/2	60	10YR 5/6	40	C	M	Clay loam	Prominent Redox Concentrations
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 12.00

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-005



North



South



East



West

Soil Photos: Wetland HM-005



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/19/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-006

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

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

Slope (%): 2 Lat: 39.1513492188 Long: -83.62633588766666 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 25 to 35 percent slopes NWI classification: N/A

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

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

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 X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
Data point for W-MJA-091919-02. A PEM wetland in hayfield.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	90	Y	OBL
2. Symphyotrichum novae-angliae	10	N	FACW
3. Impatiens capensis	15	N	FACW
4. Eupatorium perfoliatum	3	N	OBL
5. Persicaria sagittata	8	N	OBL
6.			
7.			
8.			
9.			
10.			
	126	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	101	x 1 =	101
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	126 (A)		151 (B)

Prevalence Index = B/A = 1.20

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-006

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 3/2	90	5YR 4/6	10	C	PL	Silty loam	Prominent Redox Concentrations
0 - 18	10YR 4/1	85	10YR 5/6	15	C	PL	Clay loam	Prominent Redox Concentrations
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 6.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-006



North



South



East



West

Soil Photos: Wetland HM-006



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/19/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-007

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

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

Slope (%): 2 Lat: 39.1506720312 Long: -83.62460673666668 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 25 to 35 percent slopes NWI classification: N/A

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

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

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 X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
Data point for W-MJA-091919-03. PEM wetland in hayfield.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	95	Y	OBL
2. Persicaria sagittata	10	N	OBL
3. Impatiens capensis	10	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	115	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		125 (B)

Prevalence Index = B/A = 1.09

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-007

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 4/2	85	5YR 4/6	15	C	PL	Loam	Prominent Redox Concentrations
4 - 10	10YR 4/2	70	5YR 4/6	30	C	PL	Loam	Prominent Redox Concentrations
10 - 18	10YR 4/1	70	5YR 4/6	30	C	PL	Clay loam	Prominent Redox Concentrations
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-007



North



South



East



West

Soil Photos: Wetland HM-007



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/20/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-008

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

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

Slope (%): 1 Lat: 39.1501270432 Long: -83.6234244879 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 12 to 18 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:

Roadside PEM under T-line. Ephemeral stream flows into wetland from east, loses definition (i.e., "sheds"), and regains definition at outflow (to the west).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix nigra	5	Y	OBL
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Typha latifolia	20	N	OBL
2. Leersia oryzoides	60	Y	OBL
3. Eupatorium perfoliatum	10	N	OBL
4. Symphyotrichum novae-angliae	8	N	FACW
5. Impatiens capensis	5	N	FACW
6. Agrimonia parviflora	1	N	FACW
7.			
8.			
9.			
10.			
	107	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	95	x 1 =	95
FACW species	14	x 2 =	28
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	112 (A)		123 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-008

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 8	10YR 4/2	85	2.5YR 3/6	15	C	PL	Silt loam	Prominent redox concentrations
8 - 18	2.5Y 3/1	80	2.5YR 3/6	20	C	PL	Clay loam	Prominent redox concentrations
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 3.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-008



North



South



East



West

Soil Photos: Wetland HM-008



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/20/2019

Applicant/Owner: AEP State: _____ Sampling Point: Wetland HM-009

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

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

Slope (%): 3 Lat: 39.1478033334 Long: -83.61759306716668 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 18 to 25 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
Wetland point for W-MJA-092019-02, a PEM/Hillside Seep.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Typha latifolia	30	N	OBL
2. Carex lurida	50	Y	OBL
3. Juncus effusus	40	Y	OBL
4. Scirpus atrovirens	15	N	OBL
5. Eupatorium perfoliatum	3	N	OBL
6. Impatiens capensis	20	N	FACW
7. Mimulus ringens	3	N	OBL
8.			
9.			
10.			
	161	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	141	x 1 =	141
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	161 (A)		181 (B)

Prevalence Index = B/A = 1.12

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-009

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 4/2	90	10YR 4/6	10	C	M	Silt	Prominent Redox Concentrations
3 - 16	2.5Y 3/1	80	5YR 4/6	20	C	PL	Clay Loam	Prominent Redox Concentrations
16 - 18	2.5Y 4/3	90	10YR 4/6	10	C	PL	Sandy Loam	Prominent Redox Concentrations
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-009



North



South



East



West

Soil Photos: Wetland HM-009



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/20/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-010

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

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

Slope (%): 3 Lat: 39.14725 Long: -83.61654113649999 Datum: WGS 84

Soil Map Unit Name: Hickory clay loam, 12 to 18 percent slopes, severely eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
PEM wetland with scattered pockets of standing water and relatively high species diversity. Drains into pond (outside of survey corridor).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Juncus effusus	55	Y	OBL
2. Impatiens capensis	18	N	FACW
3. Carex lurida	25	Y	OBL
4. Leersia oryzoides	15	N	OBL
5. Mimulus ringens	5	N	OBL
6. Typha latifolia	10	N	OBL
7. Onoclea sensibilis	10	N	FACW
8. Bidens frondosa	3	N	FACW
9. Eupatorium perfoliatum	3	N	OBL
10. Dichanthelium clandestinum	5	N	FACW
	149	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	113	x 1 =	113
FACW species	36	x 2 =	72
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	149 (A)		185 (B)

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-010

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 4/2	90	10YR 4/6	10	C	PL	Silt Loam	Prominent Redox Concentrations
3 - 10	10YR 4/1	85	5YR 4/6	15	C	PL	Silt Loam	Prominent Redox Concentrations
10 - 18	2.5Y 4/3	80	10YR 4/6	20	C	M	Sandy Loam	Prominent Redox Concentrations
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 10

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Scattered pockets of standing water in wetland.

General Site Photos Wetland HM-010



North



South



East



West

Soil Photos: Wetland HM-010



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/20/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-011

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

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

Slope (%): 3 Lat: 39.14675 Long: -83.61508030499999 Datum: WGS 84

Soil Map Unit Name: Hickory clay loam, 12 to 18 percent slopes, severely eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** Yes X No
Wetland Hydrology Present?	Yes X	No	

Remarks:
PEM wetland with scattered pockets of standing water and relatively high species diversity. Drains into ephemeral stream.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Carex lurida	20	Y	OBL
2. Typha latifolia	15	N	OBL
3. Eupatorium perfoliatum	18	N	OBL
4. Impatiens capensis	10	N	FACW
5. Acorus americanus	25	Y	OBL
6. Scirpus atrovirens	35	Y	OBL
7. Mimulus ringens	8	N	OBL
8. Persicaria sagittata	5	N	OBL
9. Schoenoplectus tabernaemontani	1	N	OBL
10.			
	137	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	127	x 1 =	127
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	137 (A)		147 (B)

Prevalence Index = B/A = 1.07

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

SOIL

Sampling Point: Wetland HM-011

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 4/2	90	10YR 4/6	10	C	PL	Silt Loam	Prominent Redox Concentrations
6 - 18	10YR 4/2	85	10YR 4/6	15	C	PL	Sandy Loam	Prominent Redox Concentrations
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 6

Wetland Hydrology Present? Yes X No _____

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

Remarks:

General Site Photos Wetland HM-011



North



South



East



West

Soil Photos: Wetland HM-011



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/23/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-012

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2769

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

Slope (%): 2 Lat: 39.12807 Long: -83.57032 Datum: WGS 84

Soil Map Unit Name: Opequon stony silt loam, 18 to 35 percent slopes, moderately eroded NWI classification: R4SBC

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

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

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Palustrine emergent wetland, located in active cow pasture. Soils compacted and rutted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Persicaria hydropiper	5	N	OBL
2. Juncus effusus	85	Y	OBL
3. Carex sp.	10	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
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:	100 (A)		90 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

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

Carex sp. given OBL indicator, as plant exhibits characteristics of common wetland plant but could not identify species as inflorescence was missing.

SOIL

Sampling Point: Wetland HM-012

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:
Microtopographic relief

General Site Photos Wetland HM-012



North
Photo taken 01-15-2020



South
Photo taken 01-15-2020



East
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos: Wetland HM-012



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/24/2019
Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-013
Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2769
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): _____
Subregion (LRR or MLRA): LRR Lat: 39.12145 Long: -83.55386 Datum: WGS 84
Soil Map Unit Name: Rossmoyne silt loam, 6 to 12 percent slopes, eroded NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM wetland ditch located in between two active agricultural fields.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-013

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	94	Y	OBL
2. Juncus effusus	1	N	FACW
3. Carex sp.	5	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	94	x 1 =	94
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		96 (B)

Prevalence Index = B/A = 0.96

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

OBL given to Carex sp., because plant exhibits characteristics to other common OBL species of Carex, however could not confirm species due to missing inflorescence.

SOIL

Sampling Point: Wetland HM-013

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	10YR 3/2	100	/				Loam	
5 – 18	10YR 4/1	90	10YR 3/4	10	C	PL	Clay loam	
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-013



North
Photo taken 01-15-2020



South
Photo taken 01-15-2020



East
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos: Wetland HM-013



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-014

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Gulch or Gully Local relief (concave, convex, none): Concave Slope (%): 4

Subregion (LRR or MLRA): LRR N Lat: 39.11521 Long: -83.54215 Datum: WGS 84

Soil Map Unit Name: Boston-Bratton complex, 12 to 18 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM fringing wetland associated with S-SAH-092519-01. Located along side corn fields.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 6.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-014

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	20	Y	OBL
2. Juncus effusus	50	Y	FACW
3. Scirpus atrovirens	20	Y	OBL
4. Lythrum salicaria	5	N	FACW
5. Impatiens capensis	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		160 (B)

Prevalence Index = B/A = 1.60

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-014

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/1	95	10YR 4/6	5	C	PL	Very fine sandy loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-014



North
Photo taken 01-15-2020



East
Photo taken 01-15-2020



South
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos: Wetland HM-014



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-015

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Gulch or Gully Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.11517 Long: -83.54143 Datum: WGS 84

Soil Map Unit Name: Boston-Bratton complex, 12 to 18 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland located in agricultural ditch.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-015

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	90	Y	FACW
2. Pilea pumila	3	N	FACW
3. Agrostis gigantea	6	N	FACW
4. Persicaria hydropiperoides	1	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	99	x 2 =	198
FAC species		x 3 =	
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		199 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

- [X] 1 - Rapid Test for Hydrophytic Vegetation
- [X] 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: Wetland HM-015

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 2/2	95	10YR 4/6	5	C	M	Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-015



North
Photo taken 01-15-2020



South
Photo taken 01-15-2020



East
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos: Wetland HM-015



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-016

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Pothole Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.11150 Long: -83.53280 Datum: WGS 84

Soil Map Unit Name: Jessup silt loam, 12 to 18 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland located in a depression in the existing T-Line ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-016

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Agrostis gigantea	5	N	FACW
2. Juncus tenuis	5	N	FAC
3. Scirpus atrovirens	25	Y	OBL
4. Impatiens capensis	15	N	FACW
5. Agrimonia parviflora	5	N	FACW
6. Dichanthelium clandestinum	50	Y	FAC
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 53	20% of total cover: 21		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	25	x 2 =	50
FAC species	55	x 3 =	165
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		240 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-016

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 6	10YR 4/1	85	7.5YR 4/6	15	C	PL	Clay loam	
6 – 12	10YR 4/2	85	10YR 4/6	16	C	M	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-016



North
Photo taken 01-15-2020



East
Photo taken 01-15-2020



South
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos:	Wetland HM-016



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-017

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LLR N Lat: 39.10975 Long: -83.52909 Datum: WGS 84

Soil Map Unit Name: Algiers silt loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland located in existing T-Line ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-017

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	100	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
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:	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- [X] 1 - Rapid Test for Hydrophytic Vegetation
- [X] 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: Wetland HM-017

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 4/3	95	10YR 4/6	5	C	M, PL	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Wetland area is a closed depression subject to ponding.

General Site Photos Wetland HM-017



North
Photo taken 01-15-2020



East
Photo taken 01-15-2020



South
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos:	Wetland HM-017



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019
Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-018
Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 39.10597 Long: -83.52151 Datum: WGS 84
Soil Map Unit Name: Hickory silt loam, 18 to 25 percent slopes, moderately eroded NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM wetland located in detention like basin. Receives drainage from manmade pond. Water conveyed by riprap drainage ditch.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-018

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	90	Y	FACW
2. Onoclea sensibilis	9	N	FACW
3. Impatiens capensis	1	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-018

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 4	10YR 2/2	100	/				Loam	
4 – 12	10YR 5/1	85	10YR 3/6	15	C	PL	Loam	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-018



North
Photo taken 01-15-2020



East
Photo taken 01-15-2020



South
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos: Wetland HM-018



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/24/2019
Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-019
Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1521
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 39.10202 Long: -83.51305 Datum: WGS 84
Soil Map Unit Name: Boston-Bratton complex, 6 to 12 percent slopes, moderately eroded NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM wetland located in fallow field. Receives drainage from a stream.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-019

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	35	Y	OBL
2. Apocynum androsaemifolium	15	N	FACU
3. Impatiens capensis	15	N	FACW
4. Solidago rugosa	15	N	FAC
5. Agrostis gigantea	20	Y	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	35	x 2 =	70
FAC species	15	x 3 =	45
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-019

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 4/2	95	7.5YR 4/6	5	C	PL	Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-019



North
Photo taken 01-15-2020



East
Photo taken 01-15-2020



South
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Soil Photos: Wetland HM-019



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-020

Investigator(s): MJA, KJD Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1521

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR Lat: 39.10058 Long: -83.50993 Datum: WGS 84

Soil Map Unit Name: Boston-Bratton complex, 6 to 12 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Small cattail marsh (PEM) depression. Seasonal water pooling likely due to shallow restrictive clay hard pan.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Dry at time of sampling, but seasonal water pooling likely.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-020

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	65	Y	OBL
2. Juncus tenuis	15	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		110 (B)

Prevalence Index = B/A = 1.38

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-020

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 3	10YR 3/2	98	10YR 4/6	2	C	M	Clay loam	Prominent redox
3 – 10	10YR 6/8	100					Clay loam	Some sand
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay hard pan

Depth (inches): 10

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Seasonal water pooling likely due to restrictive clay hard pan.

General Site Photos Wetland HM-020



West



North



South



East

General Site Photos Wetland HM-020



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-021

Investigator(s): MJA, KJD Section, Township, Range: Ohio surveys Virginia military District OH 93 Highland Lot 1203

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.09423 Long: -83.49637 Datum: WGS 84

Soil Map Unit Name: Algiers Silt Loam NWI classification: R4SBC

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PSS wetland along Elk Run, Row crops approximately 25' to the west.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-021

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Salix nigra	50	Y	OBL
2. Platanus occidentalis	15	Y	FACW
3.			
4.			
5.			
6.			
	65 = Total Cover		
50% of total cover: 33	20% of total cover: 13		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	70	Y	OBL
2. Persicaria maculosa	30	Y	FACW
3. Phalaris arundinacea	15	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	180 (A)		240 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-021

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 2	10YR 4/3	95	10YR 4/6	5	C	PL	Silty sand	
2 — 18	10YR 3/2	80	2.5YR 3/6	20	C	PL	Silty loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-021



North
Photo taken 01-15-2020



East
Photo taken 01-15-2020



South
Photo taken 01-15-2020



West
Photo taken 01-15-2020

General Site Photos Wetland HM-021



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/02/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-022

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1520

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR Lat: 39.08468 Long: -83.46692 Datum: WGS 84

Soil Map Unit Name: Opequon stony silt loam, 35 to 50 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM hillside seep. Shallow soils perched on top of bed rock.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 16

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-022

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Eupatorium perfoliatum	35	Y	FACW
2. Bidens frondosa	5	N	FACW
3. Scirpus atrovirens	50	Y	OBL
4. Lobelia siphilitica	3	N	FACW
5. Lycopus americanus	1	N	OBL
6. Leersia oryzoides	15	N	OBL
7. Impatiens capensis	8	N	FACW
8.			
9.			
10.			
11.			
	117 = Total Cover		
50% of total cover: 58.5	20% of total cover: 23.4		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	66	x 1 =	66
FACW species	51	x 2 =	102
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	117 (A)		168 (B)

Prevalence Index = B/A = 1.44

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-022

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 6	10YR 3/2	85	5YR 4/4	15	C	PL	Silt loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Bedrock

Depth (inches): 6

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-022



North



South



East



West

Soil Photos: Wetland HM-022



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/02/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-023

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1520

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Undulating Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.08288 Long: -83.46188 Datum: WGS 84

Soil Map Unit Name: Haubstadt 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 X No _____ (If no, explain in Remarks.)

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Disturbed PEM in pasture within maintained ROW. Adjacent to electrical substation.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Appears to be historic drainage feature impacted by grazing cows. Deep hoof prints in feature.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-023

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Eupatorium perfoliatum	40	Y	FACW
2. Echinochloa crus-galli	60	Y	FAC
3. Microstegium vimineum	15	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	75	x 3 =	225
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		305 (B)

Prevalence Index = B/A = 2.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-023

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/2	90	5YR 4/6	10	C	PL	Silty clay loam	Disturbed by cows
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-023



View facing north.



View facing east.



View facing south.



View facing west.

Soil Photos: Wetland HM-023



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/01/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-024

Investigator(s): KJD, JRM Section, Township, Range: Ohio surveys Virginia military district 0893 Highland Lot 1638

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Undulating Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.07266 Long: -83.43217 Datum: WGS 84

Soil Map Unit Name: Bratton Silt Loam, 6 to 12 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland in low area between corn fields.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-024

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	50	Y	FACW
2. Scirpus cyperinus	20	Y	FACW
3. Eupatorium perfoliatum	20	Y	FACW
4. Conoclinium coelestinum	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-024

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 4/2	100	/				Clay loam	
4 — 8	10YR 4/2	95	5YR 4/6	5	C	PL	Clay loam	
8 — 12	10YR 5/1	90	5YR 4/6	10	C	PL	Clay loam	
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-024



North



South



East



West

Soil Photos: Wetland HM-024



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/02/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-025

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4024, 5019

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR Lat: 39.06909 Long: -83.42037 Datum: WGS 84

Soil Map Unit Name: Opequon silt loam, 6 to 18 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM in active cow pasture, downslope from pond. High cattle disturbance.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-025

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Persicaria punctata	25	Y	OBL
2. Leersia oryzoides	40	Y	OBL
3. Schoenoplectus tabernaemontani	15	N	OBL
4. Phalaris arundinacea	35	Y	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		

50% of total cover: 57.5 20% of total cover: 23

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	35	x 2 =	70
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	115 (A)		150 (B)

Prevalence Index = B/A = 1.30

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-025

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 3/1	95	10YR 4/6	5	C	PL	Silt loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Compacted clay

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-025



North



South



East
Photo taken 01-15-2020



West

Soil Photos: Wetland HM-025



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/03/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-026

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4024, 5019

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.06814 Long: -83.41789 Datum: WGS 84

Soil Map Unit Name: Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Narrow PEM along intermittent stream in mowed field along road.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-026

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	35	Y	OBL
2. Eupatorium perfoliatum	5	N	FACW
3. Scirpus atrovirens	45	Y	OBL
4. Conoclinium coelestinum	3	N	FAC
5. Persicaria maculosa	5	N	FACW
6. Mimulus ringens	1	N	OBL
7.			
8.			
9.			
10.			
11.			
	94 = Total Cover		
50% of total cover: 47	20% of total cover: 18.8		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	81	x 1 =	81
FACW species	10	x 2 =	20
FAC species	3	x 3 =	9
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	94 (A)		110 (B)

Prevalence Index = B/A = 1.17

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-026

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 8	10YR 3/2	95	10YR 4/6	5	C	M	Clay loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 8

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos W-MJA-100319-01









Soil Photos: Wetland HM-026



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/03/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-027

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1568

Landform (hillslope, terrace, etc.): Ravine Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.06422 Long: -83.40627 Datum: WGS 84

Soil Map Unit Name: Opequon silt loam, 18 to 25 percent slopes, moderately eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Narrow PEM along intermittent stream under T-Line.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 2

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-027

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex lurida	25	Y	OBL
2. Eupatorium perfoliatum	20	N	FACW
3. Scirpus atrovirens	40	Y	OBL
4. Juncus effusus	10	N	FACW
5. Symphyotrichum pilosum	3	N	FAC
6. Trifolium pratense	3	N	FACU
7. Juncus tenuis	25	Y	FAC
8. Schedonorus arundinaceus	15	N	FACU
9.			
10.			
11.			
	141 = Total Cover		
50% of total cover: 70.5	20% of total cover: 28.2		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	30	x 2 =	60
FAC species	28	x 3 =	84
FACU species	18	x 4 =	72
UPL species		x 5 =	
Column Totals:	141 (A)		281 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-027

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 2	10YR 4/3	100					Silt	Some gravel
2 – 16	2.5Y 4/2	97	2.5Y 5/6	3	C	PL	Clay loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Bedrock

Depth (inches): 16

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos W-MJA-100319-02



North (hugging stream)



South (hugging stream)



East (soil pit taken where stream briefly flows underground)



West (stream flows underground briefly, PEM veg above)

Soil Photos: Wetland HM-027



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-028

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1568

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR Lat: 39.04546 Long: -83.36188 Datum: WGS 84

Soil Map Unit Name: Algiers silt loam NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM within floodplain of Baker Fork. Phalaris arundinacea (FACW) dominates beyond wetland boundary--boundary line largely delineated via soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-028

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex lurida	40	Y	OBL
2. Impatiens capensis	5	N	FACW
3. Eupatorium perfoliatum	10	N	FACW
4. Scirpus atrovirens	30	Y	OBL
5. Lycopus americanus	22	Y	OBL
6. Schedonorus arundinaceus	10	N	FACU
7. Agrimonia parviflora	15	N	FACW
8. Poa annua	20	N	FACU
9. Persicaria sagittata	3	N	OBL
10. Juncus effusus	3	N	FACW
11. Mimulus alatus	5	N	OBL
	163 = Total Cover		
50% of total cover: 81.5	20% of total cover: 32.6		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	43	x 2 =	86
FAC species		x 3 =	
FACU species	30	x 4 =	120
UPL species		x 5 =	
Column Totals:	173 (A)		306 (B)

Prevalence Index = B/A = 1.77

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-028

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 3	10YR 3/2	100	/				Silty loam	
3 — 8	10YR 4/1	95	7.5YR 4/4	5	C	PL	Clay loam	Prominent Redox Concentration
8 — 18	10YR 4/1	85	7.5YR 4/4	15	C	PL	Clay loam	Prominent Redox Concentration
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-028



View facing north



View facing east



View facing south



View facing west

General Site Photos Wetland HM-028



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-029

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1568

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR Lat: 39.06020 Long: -83.39377 Datum: WGS 84

Soil Map Unit Name: Berks-Muskingum channery silt loams, 18 to 35 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM at the base of two slopes, bisected by a gravel road. Wetland likely predates road based off of geomorphic position.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 3.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Hydrology impacted by gravel road. Now resembles wet roadside ditches.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-029

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Persicaria sagittata	40	Y	OBL
2. Leersia oryzoides	35	Y	OBL
3. Bidens frondosa	30	Y	FACW
4. Carex frankii	25	N	OBL
5. Juncus effusus	20	N	FACW
6. Eupatorium perfoliatum	5	N	FACW
7. Impatiens capensis	5	N	FACW
8. Mimulus alatus	3	N	OBL
9. Eleocharis obtusa	10	N	OBL
10.			
11.			
	173 = Total Cover		
50% of total cover: 87	20% of total cover: 35		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	113	x 1 =	113
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	173 (A)		233 (B)

Prevalence Index = B/A = 1.35

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-029

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	5Y 4/1	97	10YR 4/6	3	C	M		Prominent redox concentrations
4 — 14	5Y 4/1	50	10YR 4/6	15	C	M	Clay	With gravel
4 — 14	Gley 1 5/	35	/					5GY
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 14

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-029









General Site Photos Wetland HM-029



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/03/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-030

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 7372

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Undulating Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 39.04794 Long: -83.36682 Datum: WGS 84

Soil Map Unit Name: Bratton-Opequon complex, 8 to 15 percent slopes, eroded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PSS wetland formed within abandoned borrow pit in an existing transmission line ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-030

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Salix nigra	20	Y	OBL
2. Populus deltoides	10	N	FAC
3. Platanus occidentalis	40	Y	FACW
4. Gleditsia triacanthos	10	N	FAC
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Shrub Stratum (Plot size: 15')			
1. Lonicera morrowii	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 3	20% of total cover: 1		
Herb Stratum (Plot size: 5')			
1. Scirpus cyperinus	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 8	20% of total cover: 3		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	55	x 2 =	110
FAC species	20	x 3 =	60
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-030

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 14	10YR 3/2	95	5YR 4/6	5	C	PL	Loam	Refusal at 14"
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rock

Depth (inches): 14

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Man-made wetland feature. We met property owner who said he dug pit in which wetlands is located.

General Site Photos Wetland HM-030



View facing north



View facing east



View facing south



View facing west

Soil Photos:	Wetland HM-030



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro to Millbrook City/County: Adams Sampling Date: 10/07/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-031

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 7372

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.04670 Long: -83.36476 Datum: WGS 84

Soil Map Unit Name: Opequon silty clay loam, 15 to 25 percent slopes, eroded NWI classification: R4SBC

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM along intermittent stream. Surrounded by residential and old field.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-031

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	60	Y	OBL
2. Lysimachia nummularia	10	N	FACW
3. Bidens frondosa	3	N	FACW
4. Symphyotrichum pilosum	5	N	FAC
5. Carex lurida	20	N	OBL
6. Leersia oryzoides	45	Y	OBL
7.			
8.			
9.			
10.			
11.			
	143 = Total Cover		
50% of total cover: 71.5	20% of total cover: 28.6		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	125	x 1 =	125
FACW species	13	x 2 =	26
FAC species	5	x 3 =	15
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	143 (A)		166 (B)

Prevalence Index = B/A = 1.16

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-031

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/2	90	10YR 5/6	10	C	PL	Silt loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-031



North



South



East



West

Soil Photos: Wetland HM-031



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-032

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 6276

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Undulating Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.04548 Long: -83.36189 Datum: WGS 84

Soil Map Unit Name: Gessie loam, frequently flooded NWI classification: PEM1A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Linear floodplain PEM wetland adjacent to ditch feature.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-032

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	5	Y	FACW
2. Salix nigra	10	Y	OBL
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 8	20% of total cover: 3		
Shrub Stratum (Plot size: 15')			
1. Sambucus nigra	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 3	20% of total cover: 1		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	75	Y	OBL
2. Scirpus cyperinus	5	N	FACW
3. Persicaria sagittata	20	N	OBL
4. Eupatorium perfoliatum	5	N	FACW
5. Impatiens capensis	10	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	25	x 2 =	50
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	135 (A)		170 (B)

Prevalence Index = B/A = 1.26

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-032

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 18	10YR 3/2	95	5YR 4/6	5	C	PL	Clay loam	
—								
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-032



Wetland facing north



Wetland facing east



Wetland facing south



Wetland facing west

Soil Photos: Wetland HM-032



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-33

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 6276

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.04353 Long: -83.35745 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 1 to 6 percent slopes NWI classification: PEM1A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Linear PEM wetland feature (swale) between agricultural fields

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-33

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Persicaria sagittata	50	Y	OBL
2. Scirpus cyperinus	10	N	FACW
3. Carex lurida	10	N	OBL
4. Juncus effusus	10	N	FACW
5. Eupatorium perfoliatum	5	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	85 (A)		110 (B)

Prevalence Index = B/A = 1.29

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-33

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 3/2	95	5YR 4/6	5	C	PL	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-33



Wetland facing north



Wetland facing east



Wetland facing south



Wetland facing west

Soil Photos: Wetland HM-33



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-034

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 16147

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR Lat: 39.04151 Long: -83.35271 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM in steep valley. Dam upstream of ROW

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 3
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Source of water is groundwater seep

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-034

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	40	Y	OBL
2. Carex lurida	20	N	OBL
3. Microstegium vimineum	20	N	FAC
4. Scirpus cyperinus	5	N	FACW
5. Eutrochium purpureum	5	N	FAC
6. Carex sp.	25	Y	FACW
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 57.5	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	30	x 2 =	60
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		195 (B)

Prevalence Index = B/A = 1.70

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

Carex sp. assigned FACW indicator based on surrounding vegetation, and soil/hydrology indicators.

SOIL

Sampling Point: Wetland HM-034

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 2/1	100					Muck	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☑ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-034



Wetland facing north



Wetland facing east



Wetland facing south



Wetland facing west

Soil Photos: Wetland HM-034



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/07/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-035

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 16147

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR or MLRA): LRR Lat: 39.03788 Long: -83.34537 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM hillside seep

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-035

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	70	Y	FAC
2. Scirpus cyperinus	35	Y	FACW
3. Impatiens capensis	20	N	FACW
4. Solidago canadensis	3	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	128 = Total Cover		
50% of total cover: 64	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	70	x 3 =	210
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	128 (A)		332 (B)

Prevalence Index = B/A = 2.59

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-035

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 2	10YR 3/2	100					Silt	
2 – 5	10YR 6/1	40	10YR 5/6		C	M	Clay	
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel/rock

Depth (inches): 5

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Wetland HM-035



North



South



East



West

Soil Photos: Wetland HM-035



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/08/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-036

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot not numbered

Landform (hillslope, terrace, etc.): Channel (abandoned) Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.03048 Long: -83.32730 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM along eroded drainage feature with no apparent stream connection.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-036

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex crinita	60	Y	OBL
2. Dichanthelium clandestinum	20	Y	FAC
3. Scirpus cyperinus	15	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	15	x 2 =	30
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		150 (B)

Prevalence Index = B/A = 1.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-036

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 8	10YR 4/2	80	10YR 5/8	20	C	M	Clay loam	Prominent redox concentrations
8 — 18	10YR 4/2	80	10YR 5/8	10	C	M	Clay loam	Prominent redox concentrations
8 — 18	/		5YR 4/6	10	C	PL		
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

PEM along eroded drainage feature with no apparent stream connection.

General Site Photos Wetland HM-036



North



South



East



West

General Site Photos Wetland HM-036



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-037

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 12512

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.02619 Long: -83.31634 Datum: WGS 84

Soil Map Unit Name: Latham silt loam, 8 to 15 percent slopes NWI classification: PUBGh

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PSS, ephemeral ponding area. Dry at time of sampling, but concave and sparsely vegetated. Water likely pools at center of wetland seasonally.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Dry at time of sampling, but concave and sparsely vegetated. Water likely pools at center of wetland seasonally.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-037

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Salix nigra	40	Y	OBL
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5')			
1. Persicaria maculosa	30	Y	FACW
2. Apocynum cannabinum	15	Y	FACU
3. Carex frankii	20	Y	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	105 (A)		180 (B)

Prevalence Index = B/A = 1.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-037

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	2.5Y 6/2	90	5YR 5/6	10	C	PL	Clay loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay pan

Depth (inches): 10

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-037



North



South



East



West

Hydrology Photos Wetland HM-037



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-038

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 10336

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.02372 Long: -83.30984 Datum: WGS 84

Soil Map Unit Name: Tilsit silt loam, 0 to 3 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM adjacent to pond in field. Pond overflow drains into PEM via culvert.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Water sourced from pond via culvert.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-038

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Scirpus cyperinus	30	Y	FACW
2. Leersia oryzoides	45	Y	OBL
3. Lycopus americanus	20	N	OBL
4. Symphyotrichum pilosum	15	N	FAC
5. Juncus effusus	3	N	FACW
6. Toxicodendron radicans	1	N	FAC
7.			
8.			
9.			
10.			
11.			
	114 = Total Cover		
50% of total cover: 57	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	33	x 2 =	66
FAC species	16	x 3 =	48
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	114 (A)		179 (B)

Prevalence Index = B/A = 1.57

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-038

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 6	2.5Y 6/3	70	7.5YR 4/6	30	C	PL	Clay loam	Prominent redox concentrations
6 – 12	2.5Y 6/2	85	7.5YR 4/6	15	C	PL	Clay loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Compacted clay

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-038



North



South



East



West

Hydrology Photos Wetland HM-038



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-039

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 10336

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.02364 Long: -83.30936 Datum: WGS 84

Soil Map Unit Name: Tilsit silt loam, 0 to 3 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM data point for a PSS/PEM complex. Wetland in field, adjacent to pond. Boundary largely determined by soils. Dichanthelium clandestinum dominates beyond border, but soil chroma too high.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Water potentially sourced from pond. Upland buffer between wetland and pond, but no culvert observed.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-039

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	65	Y	OBL
2. Dichanthelium clandestinum	40	Y	FAC
3. Juncus effusus	20	N	FACW
4. Schedonorus arundinaceus	15	N	FACU
5. Scirpus cyperinus	10	N	FACW
6. Salix nigra	5	N	OBL
7.			
8.			
9.			
10.			
11.			
	155 = Total Cover		
50% of total cover: 77.5	20% of total cover: 31		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	30	x 2 =	60
FAC species	40	x 3 =	120
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	155 (A)		310 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-039

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 6	10YR 5/2	90	5YR 4/6	10	C	PL	Loam	Prominent redox concentrations
6 — 14	2.5Y 6/2	95	5YR 4/6	5	C	M	Clay loam	Prominent redox concentrations
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—								
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—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Compacted

Depth (inches): 14

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-039



North



South



East



West



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-040

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 10336

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.02364 Long: -83.30936 Datum: WGS 84

Soil Map Unit Name: Tilsit silt loam, 0 to 3 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PSS data point for a PSS/PEM complex. Wetland in field, adjacent to pond. Boundary largely determined by soils. Dichanthelium clandestinum dominates beyond border, but soil chroma too high.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Water potentially sourced from pond. Upland buffer between wetland and pond, but no culvert observed.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-040

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Salix nigra	50	Y	OBL
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	65	Y	OBL
2. Dichanthelium clandestinum	40	Y	FAC
3. Juncus effusus	20	N	FACW
4. Schedonorus arundinaceus	15	N	FACU
5. Scirpus cyperinus	10	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	150 = Total Cover		
50% of total cover: 75	20% of total cover: 30		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	30	x 2 =	60
FAC species	40	x 3 =	120
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	200 (A)		355 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-040

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 6	10YR 5/2	90	5YR 4/6	10	C	PL	Loam	Prominent redox concentrations
6 — 14	2.5Y 6/2	95	5YR 4/6	5	C	M	Clay loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Compacted clay

Depth (inches): 14

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-040



North
Photo taken 01-15-2020



East
Photo taken 01-15-2020



South
Photo taken 01-15-2020



West
Photo taken 01-15-2020

Hydrology Photos Wetland HM-040



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-041

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 8

Subregion (LRR or MLRA): LRR N Lat: 39.01966 Long: -83.29747 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM, hillside seep.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Hillside seep.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-041

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dryopteris carthusiana	60	Y	FAC
2. Fraxinus pennsylvanica	10	N	FACW
3. Scirpus cyperinus	8	N	FACW
4. Symphyotrichum pilosum	5	N	FAC
5. Polystichum acrostichoides	5	N	FACU
6. Bidens frondosa	3	N	FACW
7. Ludwigia alternifolia	1	N	FACW
8. Dichanthelium acuminatum	20	Y	FAC
9. Coleataenia anceps	10	N	FAC
10. Rubus allegheniensis	3	N	FACU
11. Liriodendron tulipifera	3	N	FACU
	128 = Total Cover		
50% of total cover: 64	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	22	x 2 =	44
FAC species	95	x 3 =	285
FACU species	11	x 4 =	44
UPL species	0	x 5 =	0
Column Totals:	128 (A)		373 (B)

Prevalence Index = B/A = 2.91

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-041

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	2.5Y 5/2	85	5YR 4/6	15	C	PL	Clay loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel/rock

Depth (inches): 5

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-041



North



South



East



West

Hydrology Photos Wetland HM-041



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/10/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-042

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Sinkhole Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.01654 Long: -83.28460 Datum: WGS 84

Soil Map Unit Name: Shelocta-Berks association, very steep NWI classification: PEM1A

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

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

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 X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM in potential karst sinkhole. Very eroded surrounding wetland.

Soils very disturbed, likely masking potential hydric soil indicators. Wetland determination based on strong vegetation and hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Dry during visit, but standing water likely in wet season.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-042

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	65	Y	OBL
2. Juncus tenuis	25	Y	FAC
3. Alisma subcordatum	20	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		160 (B)

Prevalence Index = B/A = 1.45

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-042

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 8	10YR 6/3	95	10YR 5/6	5	C	PL	Clay loam	Prominent redox concentrations
8 — 16	10YR 6/3	85	10YR 5/6	15	C	PL	Clay loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay pan

Depth (inches): 16

Hydric Soil Present? Yes X No _____

Remarks:

Soils very disturbed, likely masking potential hydric soil indicators. Wetland determination based on strong vegetation and hydrology indicators.

General Site Photos Wetland HM-042



North



South



East



West

Hydrology Photos Wetland HM-042



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/10/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-043

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.01454 Long: -83.27771 Datum: WGS 84

Soil Map Unit Name: Shelocta-Berks association, steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM alongside ephemeral stream

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-043

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Carex lurida	90	Y	OBL
2. Scirpus atrovirens	15	N	OBL
3. Juncus effusus	10	N	FACW
4. Dichanthelium clandestinum	5	N	FAC
5. Echinochloa crus-galli	1	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	121 = Total Cover		

50% of total cover: 61 20% of total cover: 24

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	10	x 2 =	20
FAC species	6	x 3 =	18
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	121 (A)		143 (B)

Prevalence Index = B/A = 1.18

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-043

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	10YR 4/2	95	10YR 5/6	5	C	PL	Silty loam	Prominent redox concentrations
5 – 7	10YR 4/2	75	10YR 5/6	25	C	M	Silty loam	With gravel
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 7

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-043



North



South



East



West

Soil Photos: Wetland HM-043



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/11/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-044

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.01336 Long: -83.27204 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM adjacent to stream

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-044

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Scirpus atrovirens	80	Y	OBL
2. Persicaria sagittata	40	Y	OBL
3. Dichanthelium clandestinum	20	N	FAC
4. Persicaria maculosa	15	N	FACW
5. Solidago canadensis	1	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	156 = Total Cover		
50% of total cover: 78	20% of total cover: 31		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	15	x 2 =	30
FAC species	20	x 3 =	60
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	156 (A)		214 (B)

Prevalence Index = B/A = 1.37

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-044

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 4/2	97	5YR 4/6	3	C	PL	Loam	Prominent redox concentrations
4 — 7	2.5Y 4/2	85	5YR 4/6	15	C	PL	Clay loam	Prominent redox concentrations
7 — 9	2.5Y 4/2	40	7.5YR 4/6	60			Clay loam	Gravel
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 9

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-044



North



South



East



West

Soil Photos: Wetland HM-044



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/11/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-045

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Sinkhole Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.01319 Long: -83.27124 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland in potential karst sinkhole. Frogs observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 6.00	
Water Table Present?	Yes X	No _____	Depth (inches): 6.00	
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00	**Wetland Hydrology Present?** Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-045

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha latifolia	65	Y	OBL
2. Scirpus atrovirens	20	N	OBL
3. Lemna minor	15	N	OBL
4. Juncus tenuis	10	N	FAC
5. Eleocharis obtusa	5	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		135 (B)

Prevalence Index = B/A = 1.17

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-045

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 2	10YR 4/2	95	5YR 4/6	5	C	PL	Clay loam	Prominent redox concentrations
2 — 12	5Y 4/2	70	10YR 5/6	20	C	M	Clay	
2 — 12			5YR 4/6	10	C	PL		Prominent redox concentrations
12 — 18	5Y 4/2	70	10YR 5/6	30	C	M	Clay	With some gravel
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-045



North



South



East



West

Soil Photos: Wetland HM-045



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/14/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-046

Investigator(s): BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Kettle Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.00590 Long: -83.23942 Datum: WGS 84

Soil Map Unit Name: Coolville silt loam, 1 to 8 percent slopes NWI classification: PUBGx

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland in a cow pasture that may have been a pond previously.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 5.00
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Impermeable clay layer at 10" depth retaining precipitation. No water table observed.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-046

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Sparganium angustifolium	90	Y	OBL
2. Eleocharis acicularis	15	N	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 53	20% of total cover: 21		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
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:	105 (A)		105 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-046

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	Gley 1 5/1	80	10YR 5/8	20	C	M	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Hardpan

Depth (inches): 10

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-046



West



North



South



East

General Site Photos Wetland HM-046



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike Sampling Date: 10/15/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-047

Investigator(s): BCR, JW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 15464

Landform (hillslope, terrace, etc.): Channel (active) Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.00058 Long: -83.22332 Datum: WGS 84

Soil Map Unit Name: Latham-Wharton silt loams, 15 to 25 percent slopes NWI classification: R4SBC

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland within active stream channel and existing transmission line ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 4.00

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Wetland within active stream channel, water table not distinguishable from surface flow.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-047

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Sparganium angustifolium	70	Y	OBL
2. Persicaria sagittata	35	Y	OBL
3. Persicaria pensylvanica	15	N	FACW
4. Bidens frondosa	10	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		155 (B)

Prevalence Index = B/A = 1.19

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-047

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	Gley 1 4/1	80	10YR 5/8	20	C	M	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rocky

Depth (inches): 5

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-047



West



North



South



East

General Site Photos Wetland HM-047



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike Sampling Date: 10/15/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-048

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 15464

Landform (hillslope, terrace, etc.): Ravine Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.99779 Long: -83.21786 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, steep NWI classification: R4SBC

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland in a valley of an infrequently maintained ROW with an intermittent stream running through it.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-048

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	30	Y	FAC
2. Bidens frondosa	30	Y	FACW
3. Eupatorium perfoliatum	10	N	FACW
4. Persicaria pensylvanica	20	N	FACW
5. Scirpus atrovirens	10	N	OBL
6. Scirpus cyperinus	5	N	FACW
7. Alisma subcordatum	5	N	OBL
8. Ludwigia alternifolia	2	N	FACW
9. Typha angustifolia	2	N	OBL
10.			
11.			
	114 = Total Cover		
50% of total cover: 57	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	67	x 2 =	134
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	114 (A)		241 (B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-048

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 5/1	90	10YR 5/8	10	C	M	Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rocky

Depth (inches): 10

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-048



West



North



South



East

General Site Photos Wetland HM-048



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike Sampling Date: 10/16/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-049

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot not numbered

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.98850 Long: -83.20113 Datum: WGS 84

Soil Map Unit Name: Wernock Variant silt loam, 3 to 8 percent slopes NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland in a residential yard on a toeslope next to a pond. The northwestern edge of the wetland has been mowed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1.00	
Water Table Present?	Yes X	No _____	Depth (inches): 4.00	
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00	**Wetland Hydrology Present?** Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-049

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium accumunatum	50	Y	FAC
2. Juncus tenuis	35	Y	FAC
3. Scirpus atrovirens	15	N	OBL
4. Juncus torreyi	15	N	FACW
5. Scirpus cyperinus	10	N	FACW
6. Juncus effusus	5	N	FACW
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	30	x 2 =	60
FAC species	85	x 3 =	255
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		330 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)
Part of wetland has been mowed

SOIL

Sampling Point: Wetland HM-049

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	Gley 1 5/2	75	10YR 5/8	25	C	M	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rocky

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-049



North



East



South



West

Soil Photos: Wetland HM-049



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike Sampling Date: 10/16/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-050

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): concave Slope (%): 4

Subregion (LRR or MLRA): LRR N Lat: 38.97855 Long: -83.18308 Datum: WGS 84

Soil Map Unit Name: Latham-Wharton silt loams, 15 to 25 percent slopes NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland on a hillside in an infrequently maintained ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 1.00

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

High water table not observed yet likely present during wet time of year.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-050

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	2	N	FACU
2. Rubus allegheniensis	2	N	FACU
3.			
4.			
5.			
6.			
	4 = Total Cover		
50% of total cover: 2	20% of total cover: 1		
Herb Stratum (Plot size: 5')			
1. Scirpus cyperinus	10	N	FACW
2. Juncus effusus	60	Y	FACW
3. Mimulus ringens	15	Y	OBL
4. Dichanthelium clandestinum	10	N	FAC
5. Solidago gigantea	10	N	FACW
6. Poa palustris	5	N	FACW
7. Carex vulpinoidea	5	N	OBL
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	85	x 2 =	170
FAC species	10	x 3 =	30
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	119 (A)		236 (B)

Prevalence Index = B/A = 1.98

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-050

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	Gley 1 5/2	85	10YR 5/8	15	C	M	Clay Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-050



East



South



West



North

Soil Photos: Wetland HM-050



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike Sampling Date: 10/17/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-051

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 14896

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 38.95893 Long: -83.14579 Datum: WGS 84

Soil Map Unit Name: Latham-Wharton silt loams, 15 to 25 percent slopes NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland on a hillside, fed by an ephemeral stream, in an infrequently maintained ROW and adjacent to an ATV trail.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-051

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	50	Y	FACW
2. Scirpus atrovirens	35	Y	OBL
3. Scirpus cyperinus	10	N	FACW
4. Juncus tenuis	30	Y	FAC
5. Solidago gigantea	5	N	FACW
6. Carex molesta	2	N	FAC
7.			
8.			
9.			
10.			
11.			
	132 = Total Cover		
50% of total cover: 66	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	65	x 2 =	130
FAC species	32	x 3 =	96
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	132 (A)		261 (B)

Prevalence Index = B/A = 1.98

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-051

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 16	5Y 5/2	70	5YR 5/8	30	C	M/PL		
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Hardpan

Depth (inches): 16

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-051



North



East



South



West

Soil Photos: Wetland HM-051



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/22/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-052

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR or MLRA): LRR N Lat: 38.92628 Long: -83.09737 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM wetland abuts S-DCS-102219-02

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 6.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-052

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Typha angustifolia	45	Y	OBL
2. Scirpus cyperinus	40	Y	FACW
3. Leersia oryzoides	30	N	OBL
4. Persicaria sagittata	40	Y	OBL
5. Dichanthelium clandestinum	5	N	FAC
6. Onoclea sensibilis	5	N	FACW
7.			
8.			
9.			
10.			
11.			
	165 = Total Cover		
50% of total cover: 83	20% of total cover: 33		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	45	x 2 =	90
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	165 (A)		220 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-052

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 6	10YR 5/1	80	10YR 4/6	20	C	PL	Clay loam	HS odor
6 — 16	Gley 1 5/_	92	7.5YR 4/4	7	C	PL	Clay loam	
—			10YR 2/1	1	D	M		
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-052



north



east



south



west

Soil Photos: Wetland HM-052





WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/22/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-053

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Concave Slope (%): 4-8%

Subregion (LRR or MLRA): LRR N Lat: 38.92482 Long: -83.09510 Datum: WGS 84

Soil Map Unit Name: Latham silt loam, 15 to 25 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
enlongated PEM wetland which generally follows stream and water bar

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:
Stream S-DCS-102219-01 is directly abutting wetland

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-053

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Scirpus cyperinus	75	Y	FACW
2. Leersia oryzoides	40	Y	OBL
3. Persicaria sagittata	20	N	OBL
4. Solidago gigantea	10	N	FACW
5. Eutrochium purpureum	10	N	FAC
6. Ludwigia alternifolia	5	N	FACW
7. Impatiens capensis	5	N	FACW
8. Onoclea sensibilis	5	N	FACW
9.			
10.			
11.			
	170 = Total Cover		
50% of total cover: 85	20% of total cover: 34		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	100	x 2 =	200
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	170 (A)		290 (B)

Prevalence Index = B/A = 1.71

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-053

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 1	10YR 4/2	60	10YR 4/6	10	C	M	Clay loam	
—	10YR 2.5/1	30					Clay loam	organic matter
1 — 6	10YR 5/2	80	7.5YR 4/6	20	C	M	Clay loam	
6 — 14	10YR 5/2	75	10YR 4/6	25	C	PL	Clay Loam	
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rock

Depth (inches): 14

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-053



north



east



south



west

Soil Photos: Wetland HM-053





WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/21/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-054

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Concave Slope (%): 10%

Subregion (LRR or MLRA): LRR N Lat: 38.92189 Long: -83.09170 Datum: WGS 84

Soil Map Unit Name: Coolville-Rarden silt loams, 8 to 15 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

small PEM wetland in a topographic low spot within the active T-line ROW

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-054

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Scirpus cyperinus	95	Y	FACW
2. Symphyotrichum sp.	5	N	
3. Apocynum androsaemifolium	1	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	101 = Total Cover		
50% of total cover: 51	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	96 (A)		194 (B)

Prevalence Index = B/A = 2.02

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-054

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	10YR 4/2	95	10YR 5/6	5	C	M	Silty clay loam	
5 – 16	10YR 5/2	92	10YR 5/6	8	C	M	Clay loam	more moist
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-054



north



east



south



west

Soil Photos:	Wetland HM-054



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto County Sampling Date: 10/23/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-055

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Concave Slope (%): 5-10

Subregion (LRR or MLRA): LRR N Lat: 38.91682 Long: -83.08406 Datum: WGS 84

Soil Map Unit Name: Shelocta-Wharton-Latham association, steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Small PEM wetland in hillside bench

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 12.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-055

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Platanus occidentalis	3	N	FACW
2. Salix nigra	3	N	OBL
3.			
4.			
5.			
6.			
	6 = Total Cover		
50% of total cover: 3	20% of total cover: 1		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	40	Y	FACW
2. Alisma subcordatum	20	N	OBL
3. Leersia oryzoides	40	Y	OBL
4. Ludwigia alternifolia	5	N	FACW
5. Juncus tenuis	10	N	FAC
6. Dichanthelium acuminatum	20	N	FAC
7. Solidago gigantea	10	N	FACW
8. Eutrochium purpureum	5	N	FAC
9.			
10.			
11.			
	150 = Total Cover		
50% of total cover: 75	20% of total cover: 30		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	63	x 1 =	63
FACW species	58	x 2 =	116
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	156 (A)		284 (B)

Prevalence Index = B/A = 1.82

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: Wetland HM-055

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 6	7.5YR 3/2	95	7.5YR 4/6	5	C	PL	Clay loam	HS odor
6 — 12	2.5Y 4/1	90	2.5Y 4/4	10	C	PL	Clay loam	
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rock

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-055



north



east



south



west

Soil Photos: Wetland HM-055



Soil Profile



Soil Profile



Soil Profile & Munsell

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 11/01/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-056

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 38.90208 Long: -83.06512 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Seep-fed PEM adjacent to ATV access road on very eroded hillside.

Soils highly disturbed--likely masking any potential hydric soil indicators. Wetland determination based on strong vegetation and hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 12.00

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-056

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex lurida	55	Y	OBL
2. Scirpus atrovirens	20	N	OBL
3. Dichanthelium clandestinum	15	N	FAC
4. Schedonorus arundinaceus	10	N	FACU
5. Symphyotrichum pilosum	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	103 = Total Cover		
50% of total cover: 52	20% of total cover: 21		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species	0	x 2 =	0
FAC species	18	x 3 =	54
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	103 (A)		169 (B)

Prevalence Index = B/A = 1.64

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-056

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 5/3	97	10YR 6/6	3	C	M	Silty loam	Gravelly
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Soils highly disturbed--likely masking any potential hydric soil indicators. Wetland determination based on strong vegetation and hydrology indicators.

General Site Photos Wetland HM-056



North



South



East



West

Hydrology Photos Wetland HM-056



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 11/01/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-057

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 38.90018 Long: -83.06329 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Seep-fed PEM on eroded hillside, occasional ATV disturbance.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ✓ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 16.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-057

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	40	Y	FACW
2. Leersia oryzoides	25	Y	OBL
3. Scirpus atrovirens	20	Y	OBL
4. Dichanthelium acuminatum	15	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	40	x 2 =	80
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		170 (B)

Prevalence Index = B/A = 1.70

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-057

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 5/2	80	7.5YR 5/8	20	C	M	Silty loam	With gravel
4 — 18	10YR 5/6	60	2.5Y 6/1	30	C	M	Clay	With gravel
4 — 18			10YR 5/2	10	C	M	Clay	
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:
Very disturbed

General Site Photos Wetland HM-057



North



South



East



West

Hydrology Photos Wetland HM-057



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 11/01/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-058

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 38.89996 Long: -83.06257 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Seep-fed PEM on eroded hillside, occasional ATV disturbance.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 16.00

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-058

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Scirpus atrovirens	60	Y	OBL
2. Dichanthelium acuminatum	45	Y	FAC
3. Cyperus esculentus	3	N	FACW
4. Ludwigia alternifolia	1	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	109 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	4	x 2 =	8
FAC species	45	x 3 =	135
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	109 (A)		203 (B)

Prevalence Index = B/A = 1.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-058

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 5/2	80	7.5YR 5/8	20	C	M	Silty loam	
4 — 18	10YR 5/6	60	2.5Y 6/1	30	C	M	Clay	With gravel
4 — 18	10YR 5/2	10						
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:
Very disturbed

General Site Photos Wetland HM-058



North



South



East



West

General Site Photos Wetland HM-058



Soil profile
Photo taken 01-16-2020

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/31/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-059

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 38.88343 Long: -83.04061 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Isolated hillside PEM.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 0.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-059

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	40	Y	FACW
2. Scirpus cyperinus	25	Y	FACW
3. Schedonorus arundinaceus	20	N	FACU
4. Euthamia graminifolia	10	N	FAC
5. Solidago canadensis	10	N	FACU
6. Symphyotrichum pilosum	5	N	FAC
7. Mentha arvensis	5	N	FACW
8. Onoclea sensibilis	3	N	FACW
9.			
10.			
11.			
	118 = Total Cover		
50% of total cover: 59	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	73	x 2 =	146
FAC species	15	x 3 =	45
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	118 (A)		311 (B)

Prevalence Index = B/A = 2.64

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-059

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 6	2.5Y 5/2	80	10YR 5/8	20	C	M	Clay loam	
6 – 14	2.5Y 5/2	90	10YR 5/8	10	C	M	Clay	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay

Depth (inches): 14

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-059



North



South



East



West

Soil Photos: Wetland HM-059



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto County Sampling Date: 10/24/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-060

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot 14579

Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Concave Slope (%): 5-8

Subregion (LRR or MLRA): LRR N Lat: 38.87601 Long: -83.03190 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
seep fed PEM wetland on downslope side of ROW with water contained inputs and bermed along edge of ROW

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:
Standing water present but limited to tire ruts

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-060

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	45	Y	FAC
2. Scirpus cyperinus	25	Y	FACW
3. Cyperus diandrus	15	N	FACW
4. Ludwigia alternifolia	3	N	FACW
5. Persicaria pensylvanica	10	N	FACW
6. Verbesina alternifolia	15	N	FAC
7. Onoclea sensibilis	5	N	FACW
8. Woodwardia areolata	3	N	FACW
9.			
10.			
11.			
	121 = Total Cover		
50% of total cover: 61	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	61	x 2 =	122
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	121 (A)		302 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-060

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 9	2.5Y 5/2	85	10YR 4/6	15	C	PL	Clay loam	PL/M
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rocks

Depth (inches): 9

Hydric Soil Present? **Yes** X **No** _____

Remarks:
Soil saturated

General Site Photos Wetland HM-060



north



east



south



west

Soil Photos:	Wetland HM-060



soil profile



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-061

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot 1455

Landform (hillslope, terrace, etc.): Lowland Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 38.86945 Long: -83.01849 Datum: WGS 84

Soil Map Unit Name: Peoga silt loam, rarely flooded NWI classification: PUBGx

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland surrounding small duckweed-covered pond in maintained junk yard.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1.00
Water Table Present?	Yes X	No _____	Depth (inches): 1.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-061

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	65	Y	OBL
2. Carex frankii	35	Y	OBL
3. Typha latifolia	15	N	OBL
4. Lemna minor	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
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:	120 (A)		120 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: Wetland HM-061

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 3	10YR 4/2	90	5YR 4/4	20	C	PL	Silty loam	Prominent redox concentrations
3 — 12	2.5Y 4/1	80	5YR 4/4	20	C	PL	Clay loam	Prominent redox concentrations
12 — 18	2.5Y 4/1	95	5YR 4/4	5	C	PL	Clay loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-061



North



South



East



West

Soil Photos: Wetland HM-061



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-062

Investigator(s): MJA, DMS Section, Township, Range: T 3 N R 21 W S 31

Landform (hillslope, terrace, etc.): Lowland Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 38.86482 Long: -82.99229 Datum: WGS 84

Soil Map Unit Name: Fitchville silt loam, 0 to 3 percent slopes NWI classification: PFO1A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM data point within a PEM/PSS complex. PSS fringe flanks PEM on east and west edges. Ephemeral stream flows through center.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☑ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-062

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Persicaria amphibia	65	Y	OBL
2. Hibiscus moscheutos	35	Y	OBL
3. Carex tribuloides	10	N	FACW
4. Xanthium strumarium	1	N	FAC
5. Echinochloa muricata	1	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	112 = Total Cover		
50% of total cover: 56	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	11	x 2 =	22
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	112 (A)		125 (B)

Prevalence Index = B/A = 1.12

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-062

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 2	10YR 3/2	97	7.5YR 4/6	3	C	PL	Silty loam	Prominent redox concentrations
2 — 18	10YR 4/2	90	7.5YR 4/6	10	C	PL	Clay loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-062



North



South



East



West

Soil Photos: Wetland HM-062



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-063

Investigator(s): MJA, DMS Section, Township, Range: T 3 N R 21 W S 31

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.86457 Long: -82.99198 Datum: WGS 84

Soil Map Unit Name: Fitchville silt loam, 0 to 3 percent slopes NWI classification: PFO1A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PSS data point within a PEM/PSS complex. PSS fringe flanks PEM on east and west edges. Row crops directly west of wetland, highway directly east of wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-063

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	20	Y	FACW
2. Salix nigra	30	Y	OBL
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Shrub Stratum (Plot size: 15')			
1. Cephalanthus occidentalis	15	Y	OBL
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 8	20% of total cover: 3		
Herb Stratum (Plot size: 5')			
1. Persicaria amphibia	50	Y	OBL
2. Hibiscus moscheutos	15	N	OBL
3. Lycopus americanus	15	N	OBL
4. Typha latifolia	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	130	x 1 =	130
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	150 (A)		170 (B)

Prevalence Index = B/A = 1.13

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-063

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 6	10YR 3/2	90	2.5YR 3/6	10	C	PL	Loam	Prominent redox concentrations
6 — 18	10YR 4/2	90	5YR 4/6	10	C	PL	Clay loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☑ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-063



North



South



East



West

Soil Photos: Wetland HM-063



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-064

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 5

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.85864 Long: -82.98539 Datum: WGS 84

Soil Map Unit Name: Haymond silt loam, occasionally flooded NWI classification: R5UBH

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland trisected by narrow upland buffers. Isolated pockets of standing water and cattail. Located along Candy Run, near water treatment plant.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 3.00
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-064

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	5	Y	OBL
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2	20% of total cover: 1		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Solidago canadensis	1	N	FACU
2. Mimulus alatus	5	N	OBL
3. Typha latifolia	10	N	OBL
4. Populus deltoides	15	N	FAC
5. Juncus effusus	18	N	FACW
6. Phalaris arundinacea	25	Y	FACW
7. Arthraxon hispidus	65	Y	FAC
8.			
9.			
10.			
11.			
	139 = Total Cover		
50% of total cover: 70	20% of total cover: 28		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	43	x 2 =	86
FAC species	80	x 3 =	240
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	144 (A)		350 (B)

Prevalence Index = B/A = 2.43

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-064

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 5	10YR 5/2	95	5YR 4/6	5	C	PL	Silty loam	Prominent redox concentrations
5 — 18	10YR 5/3	65	5YR 4/6	5	C	PL	Silty loam	Prominent redox concentrations
5 — 18	10YR 5/2	30						
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-064



North



South



East



West

Soil Photos:	Wetland HM-064



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-065

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 5

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.85773 Long: -82.98458 Datum: WGS 84

Soil Map Unit Name: Ockley loam, 1 to 8 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM within gulley, under t-line. ~500 feet from water treatment plant.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1
Water Table Present?	Yes X	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-065

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Arthraxon hispidus	60	Y	FAC
2. Acorus americanus	40	Y	OBL
3. Carex frankii	15	N	OBL
4. Phalaris arundinacea	5	N	FACW
5. Carex lurida	5	N	OBL
6. Microstegium vimineum	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	5	x 2 =	10
FAC species	65	x 3 =	195
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		265 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-065

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 4/2	95	5YR 4/6	5	C	PL	Clay loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel/clay

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-065



North



South



East



West

Soil Photos: Wetland HM-065



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-066

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 5

Landform (hillslope, terrace, etc.): Lowland Local relief (concave, convex, none): Flat Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.85357 Long: -82.98203 Datum: WGS 84

Soil Map Unit Name: Ockley loam, 1 to 8 percent slopes NWI classification: R4SBC

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM data point in between two intermittent streams. Located under T-line, flanked by woods outside ROW.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 16.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-066

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Arthraxon hispidus	60	Y	FAC
2. Leersia oryzoides	40	Y	OBL
3. Carex frankii	20	N	OBL
4. Juncus effusus	20	N	FACW
5. Typha latifolia	10	N	OBL
6. Cyperus esculentus	10	N	FACW
7. Mimulus alatus	5	N	OBL
8.			
9.			
10.			
11.			
	165 = Total Cover		
50% of total cover: 83	20% of total cover: 33		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species	30	x 2 =	60
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	165 (A)		315 (B)

Prevalence Index = B/A = 1.91

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-066

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 2	10YR 3/2	100	/				Silt	Mucky
2 — 8	Gley 1 3/10Y	95	2.5YR 3/6	5	C	PL	Silty loam	Prominent redox concentrations
8 — 18	2.5Y 4/1	90	5YR 4/6	10	C	PL	Clay loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-066



North



South



East



West

Soil Photos: Wetland HM-066



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/29/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-067

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 9

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 38.83859 Long: -82.97337 Datum: WGS 84

Soil Map Unit Name: Alford silt loam, 10 to 25 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Hillside seep PEM. Small pocket of standing water (~3 in.) with cattails where the seep begins at the top of the wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 6.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 2.00

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-067

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex vulpinoidea	50	Y	FACW
2. Leersia oryzoides	20	Y	OBL
3. Symphyotrichum pilosum	15	N	FAC
4. Juncus tenuis	10	N	FAC
5. Juncus effusus	5	N	OBL
6. Euthamia graminifolia	5	N	FAC
7. Dichanthelium clandestinum	3	N	FAC
8. Rosa multiflora	1	N	FACU
9.			
10.			
11.			
	109 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	53	x 2 =	106
FAC species	30	x 3 =	90
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	109 (A)		225 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-067

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 6/3	80	10YR 4/6	20	C	M	Clay loam	
4 — 10	10YR 5/2	60	5YR 4/6	10	C	PL	Clay	Prominent redox concentrations
4 — 10	10YR 6/3	30					Clay	
10 — 18	10YR 6/3	50					Clay	Some gravel
10 — 18	10YR 5/2	50					Clay	
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-067



North



South



East



West



Soil profile
Photo taken 01-16-2020

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/29/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-068

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 15

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR Lat: 38.82259 Long: -82.95930 Datum: WGS 84

Soil Map Unit Name: Berks channery silt loam, 8 to 15 percent slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Ridge-top PEM under T-line. Pockets of standing water (up to 10 inches) near northwest edge. Very small pond adjacent to southwest edge. Some apparent ATV disturbance.

A small wetland pocket separated by a narrow upland buffer to the southeast also observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Standing water (~10 in) observed towards the center of the wetland.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-068

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	70	Y	OBL
2. Juncus effusus	25	Y	FACW
3. Alisma subcordatum	10	N	OBL
4. Euthamia graminifolia	5	N	FAC
5. Dichanthelium clandestinum	3	N	FAC
6. Bidens frondosa	1	N	FACW
7. Symphyotrichum pilosum	1	N	FAC
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	26	x 2 =	52
FAC species	9	x 3 =	27
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		159 (B)

Prevalence Index = B/A = 1.38

Hydrophytic Vegetation Indicators:

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

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

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL Sampling Point: Wetland HM-068

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	2.5Y 5/2	80	5YR 4/6	20	C	PL	Clay loam	Prominent redox concentrations
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-068



North



South



East



West

Soil Photos: Wetland HM-068



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-069

Investigator(s): RW Section, Township, Range: T 2 N R 21 W S 26

Landform (hillslope, terrace, etc.): Ravine Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 38.80109 Long: -82.94324 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland depression located at toe of slope.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-069

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Verbesina alternifolia	15	N	FAC
2. Microstegium vimineum	75	Y	FAC
3. Rosa multiflora	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		310 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

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

SOIL

Sampling Point: Wetland HM-069

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 3	10YR 4/2	100						
3 — 12	10YR 4/3	90	10YR 3/6	10	C	M	Silty loam	
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Wetland subject to intermittent ponding.

General Site Photos Wetland HM-069



North
Photo taken 01-16-2020



East
Photo taken 01-16-2020



South
Photo taken 01-16-2020



West
Photo taken 01-16-2020

General Site Photos Wetland HM-069



Soil profile
Photo taken 01-16-2020

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Wetland HM-070

Investigator(s): RW Section, Township, Range: T 1 N R 21 W S 12

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): LRR Lat: 38.75460 Long: -82.92781 Datum: WGS 84

Soil Map Unit Name: Haymond silt loam, occasionally flooded NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

PEM wetland in low area between roadways and adjacent to residential properties.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1.00
Water Table Present?	Yes X	No _____	Depth (inches): 0.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Wetland HM-070

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex sp.	20	Y	FACW
2. Juncus effusus	10	N	FACW
3. Typha latifolia	5	N	OBL
4. Phalaris arundinacea	65	Y	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		195 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation mowed, Carex species assigned FACW indicator status based on surrounding vegetation and hydrology.

SOIL

Sampling Point: Wetland HM-070

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 4/2	85	10YR 4/6	15	C	PL	Silty loam	
4 — 18	10YR 4/1	85	10YR 4/6	15	C	PL	Clay loam	
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-070



North
Photo taken 01-16-2020



East
Photo taken 01-16-2020



South
Photo taken 01-16-2020



West
Photo taken 01-16-2020

General Site Photos Wetland HM-070



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/15/2020
Applicant/Owner: AEP State: OH Sampling Point: W-MJA-121520-04
Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto LotNotNumbered
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR N Lat: 38.94455 Long: -83.12403 Datum: WGS 84
Soil Map Unit Name: Omu1B1: Omulga 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 X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Ditch at toe of slope, wetland channelized. Within floodplain of intermittent stream (near opposite side of road). Wetland hydrology likely preceded road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-MJA-121520-04

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Ludwigia alternifolia	5	N	FACW
2. Carex lurida	70	Y	OBL
3. Salix nigra	10	N	OBL
4. Ligustrum sinense	3	N	FACU
5. Alisma subcordatum	3	N	OBL
6. Eupatorium perfoliatum	10	N	FACW
7.			
8.			
9.			
10.			
11.			
	101 = Total Cover		

50% of total cover: 51 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	83	x 1 =	83
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	101 (A)		125 (B)

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-MJA-121520-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 3	10YR 3/2	95	2.5YR 3/6	5	C	PL	Silty loam	
3 ■ 8	2.5Y 6/2	85	2.5YR 4/6	15	C	PL	Clay loam	
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 8

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-076



North



South



East



West

Soil Photos: Wetland HM-076



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/15/2020
Applicant/Owner: AEP State: OH Sampling Point: W-MJA-121520-03
Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto LotNotNumbered
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 38.94127 Long: -83.11889 Datum: WGS 84
Soil Map Unit Name: Sk: Skidmore silt loam, occasionally flooded NWI classification: R4SBC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM wetland near perennial stream, in active cow pasture.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-MJA-121520-03

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	70	Y	FACW
2. Schedonorus arundinaceus	25	N	FACU
3. Symphyotrichum pilosum	20	N	FAC
4. Andropogon virginicus	10	N	FACU
5. Panicum virgatum	15	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	140 = Total Cover		
50% of total cover: 70	20% of total cover: 28		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	35	x 3 =	105
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	140 (A)		385 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-MJA-121520-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 1	10YR 4/2	90	5YR 4/6	10	C	PL	Silty loam	
1 ■ 18	2.5Y 5/2	90	5YR 4/6	10	C	PL	Clay loam	
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-077



North



South



East



West

Soil Photos: Wetland HM-077



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/15/2020
Applicant/Owner: AEP State: OH Sampling Point: W-MJA-121520-02
Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto LotNotNumbered
Landform (hillslope, terrace, etc.): Shoulder slope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 38.93891 Long: -83.11635 Datum: WGS 84
Soil Map Unit Name: MoC2: Monongahela silt loam, 8 to 15 percent slopes, eroded NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
PEM wetland adjacent to cow pasture, between fence boundary and atv access path.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-MJA-121520-02

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5')			
1. Typha angustifolia	20	Y	OBL
2. Scirpus cyperinus	20	Y	FACW
3. Juncus effusus	20	Y	FACW
4. Lycopus americanus	3	N	OBL
5. Microstegium vimineum	45	Y	FAC
6. Ludwigia alternifolia	5	N	FACW
7. Dichanthelium clandestinum	15	N	FAC
8.			
9.			
10.			
11.			
	128 = Total Cover		
50% of total cover: 64	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 80.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	23	x 1 =	23
FACW species	45	x 2 =	90
FAC species	60	x 3 =	180
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	138 (A)		333 (B)

Prevalence Index = B/A = 2.41

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: W-MJA-121520-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 2	10YR 4/2	95	5YR 4/6	5	C	PL	Silty clay loam	
2 ■ 12	2.5Y 6/2	70	5YR 4/6	30	C	PL	Clay loam	
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:
Tire ruts

General Site Photos Wetland HM-078



North



South



East



West

Soil Photos: Wetland HM-078



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/15/2020

Applicant/Owner: AEP State: OH Sampling Point: W-MJA-121520-01

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Gulch or Gully Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.93112 Long: -83.10466 Datum: WGS 84

Soil Map Unit Name: Lah1D1: Latham silt loam, 15 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Erosional feature, turned depressional PEM wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 1.00
Water Table Present?	Yes X	No _____	Depth (inches): 8.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 2.00

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-MJA-121520-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Scirpus cyperinus	30	Y	FACW
2. Scirpus atrovirens	20	N	OBL
3. Juncus tenuis	65	Y	FAC
4. Symphyotrichum sp.	15	N	FAC
5. Euthamia graminifolia	15	N	FAC
6. Ludwigia alternifolia	20	N	FACW
7.			
8.			
9.			
10.			
11.			
	165 = Total Cover		
50% of total cover: 83	20% of total cover: 33		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	50	x 2 =	100
FAC species	95	x 3 =	285
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	165 (A)		405 (B)

Prevalence Index = B/A = 2.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)
Symphyotrichum sp. assumed FAC based on wet conditions.

SOIL Sampling Point: W-MJA-121520-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 8	5Y 6/2	75	7.5YR 5/8	25	C	M/PL	Clay loam	
8 ■ 18	10YR 5/4	80					Clay loam	
8 ■ 18	5Y 6/2	20					Clay loam	
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Wetland HM-080



North



South



East



West

Soil Photos: Wetland HM-080



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/16/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-001

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 9087

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Rolling

Slope (%): 5 Lat: 39.1722371 Long: -83.6750919 Datum: WGS 84

Soil Map Unit Name: Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Upland data point for Wetland HM-001 (w-mja-091619-01).
Field ID: U-MJA-091619-01

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans nigra	20	Y	FACU
2.			
3.			
4.			
5.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera maackii	10	Y	UPL
2. Rosa multiflora	15	Y	FACU
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Solidago canadensis	35	Y	FACU
2. Eupatorium perfoliatum	15	N	FACW
3. Lobelia siphilitica	25	N	FACW
4. Impatiens capensis	5	N	FACW
5. Desmodium spp.	20	N	FACU
6. Schedonorus arundinaceus	50	Y	FACU
7.			
8.			
9.			
10.			
	150	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	0	x 3 =	0
FACU species	140	x 4 =	560
UPL species	10	x 5 =	50
Column Totals:	195 (A)		700 (B)

Prevalence Index = B/A = 3.59

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 4	10YR 3/2	100					Loam	
4 - 10	10YR 3/3	100					Silt Loam	
10 - 12	10YR 4/4	100					Clay Loam	
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): Yes

Type: Clay

Depth (inches): 12

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-001



North

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/17/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-002

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2511

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat

Slope (%): 0 Lat: 39.1654935359 Long: -83.6591198016 Datum: WGS 84

Soil Map Unit Name: Hickory silt loam, Illinoian Till Plain, 12 to 18 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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 X	No	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Upland data point for Wetland HM-002 (W-MJA-091719-01). Data point situated in young forest/shrub scrub in t-line ROW.
Field ID: U-MJA-091719-01

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	15	N	FACU
2. Juglans nigra	45	Y	FACU
3.			
4.			
5.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Lindera benzoin	10	Y	FACW
2. Sambucus nigra	20	Y	FAC
3. Rubus allegheniensis	15	Y	FACU
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Elymus virginicus	40	Y	FACW
2. Viola rotundifolia	8	N	FAC
3. Geum canadense	20	Y	FAC
4. Ageratina altissima	8	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	76	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
		= 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	48	x 3 =	144
FACU species	83	x 4 =	332
UPL species	0	x 5 =	0
Column Totals:	181 (A)		576 (B)

Prevalence Index = B/A = 3.18

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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 X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-002

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 3/3	100					Loam	
2 - 18	10YR 4/4	100					Silty loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-002



South



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/18/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-003

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2511

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Rolling

Slope (%): 10 Lat: 39.16042 Long: -83.64726822199999 Datum: WGS 84

Soil Map Unit Name: Hickory silt loam, 18 to 25 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Upland data point for Wetland HM-003 (W-MJA-091819-01). Data point situated in young forest on east-facing slope.
DgcjbGB8 S+KH?+.7/6/7+./

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	80	Y	FACU
2.			
3.			
4.			
5.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Ligustrum sinense	15	Y	FACU
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Fraxinus pennsylvanica	10	Y	FACW
2. Geum canadense	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Lonicera japonica	40	Y	FACU
2. Campsis radicans	15	Y	FACU
	55	= 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	5	x 3 =	15
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column Totals:	165 (A)		635 (B)

Prevalence Index = B/A = 3.85

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-003

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 3/1	100					Loam	
4 - 18	10YR 3/1	100					Silty loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-003



South



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/18/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-004

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2511

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Rolling

Slope (%): 8 Lat: 39.15949 Long: -83.64541 Datum: WGS 84

Soil Map Unit Name: Negley loam, 6 to 12 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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	No X	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Upland data point situated on west-facing slope, in shrub/scrub.
Field ID: U-MJA-091819-02

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Elaeagnus angustifolia	90	Y	FACU
2.			
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Juncus tenuis	15	Y	FAC
2. Ageratina altissima	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1. Rubus allegheniensis	20	Y	FACU
2.			
	20	= 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: 25.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	115	x 4 =	460
UPL species	0	x 5 =	0
Column Totals:	130 (A)		505 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-004

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 5	10YR 3/1	100					Loam	
5 - 10	10YR 3/2	100					Loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): Yes

Type: Roots

Depth (inches): 10

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-004



Southeast



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/19/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-005

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2512

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex

Slope (%): 20 Lat: 39.15654 Long: -83.63845 Datum: WGS 84

Soil Map Unit Name: Negley loam, 18 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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	No X	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Upland data point for W-MJA-091919-01. Data point situated on east-facing slope in old field.
Field ID: U-MJA-091919-01

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	40	Y	FACU
2. Rubus allegheniensis	10	Y	FACU
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Ageratina altissima	20	Y	FACU
2. Microstegium vimineum	50	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	120 (A)		430 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-005

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 4/3	100					Loam	
4 - 10	10YR 4/6	100					Clay loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): Yes

Type: Roots/clay

Depth (inches): 10

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-005



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/19/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-006,007

Investigator(s): SAH-MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

Landform (hillslope, terrace, etc.): Shoulder slope Local relief (concave, convex, none): Convex

Slope (%): 5 Lat: 39.1513566667 Long: -83.62637186316667 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 25 to 35 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:
within maintained electrical transmission line easement
Field ID: U-MJA-091919-02

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Setaria faberi	70	Y	FACU
2. Cirsium arvense	10	N	FACU
3. Asclepias syriaca	3	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	83	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 0.00 (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	83	x 4 =	332
UPL species	0	x 5 =	0
Column Totals:	83 (A)		332 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Mowed hayfield

SOIL

Sampling Point: Upland HM-006,007

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 5/3	100	/				Loam	
4 - 12	10YR 4/3	100	/				Clay loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-006,007



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/20/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-008

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Rolling

Slope (%): 10 Lat: 39.15012 Long: -83.62349 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 12 to 18 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Upland data point for W-MJA-092019-01. Data point situated on north-facing slope under transmission line.
Field ID: U-MJA-092019-01

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Betula alleghaniensis	40	Y	FAC
2. Liriodendron tulipifera	10	N	FACU
3. Rosa multiflora	45	Y	FACU
4.			
5.			
	95	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Geum canadense	8	N	FAC
2. Dichanthelium clandestinum	35	Y	FACW
3. Rubus allegheniensis	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	51	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	48	x 3 =	144
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	146 (A)		454 (B)

Prevalence Index = B/A = 3.11

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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 X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-008

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 3/2	100					Loam	
3 - 18	10YR 5/4	97	5YR 4/6	3	C	M	Silt loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-008



South



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/20/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-009

Investigator(s): SAH-MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

Landform (hillslope, terrace, etc.): Shoulder slope Local relief (concave, convex, none): None

Slope (%): 3 Lat: 39.1478432852 Long: -83.6175955478 Datum: WGS 84

Soil Map Unit Name: Otwell silt loam, 18 to 25 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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	No X	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Upland data point situated on east-facing slope, in maintained electrical transmission line easement.
Field ID: U-MJA-092019-02

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Elaeagnus angustifolia	70	Y	FACU
2. Rubus allegheniensis	40	Y	FACU
3.			
4.			
5.			
	110	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	20	Y	FACW
2. Cirsium arvense	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 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	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	115	x 4 =	460
UPL species	0	x 5 =	0
Column Totals:	135 (A)		500 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-009

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 5	10YR 4/4	100	/				Loam	
5 - 10	10YR 4/6	100	/				Clay loam	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-009



West



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/20/2019

Applicant/Owner: AEP State: _____ Sampling Point: Upland HM-010,011

Investigator(s): MJA, SAH Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4217

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex

Slope (%): 15 Lat: 39.14672 Long: -83.61508 Datum: WGS 84

Soil Map Unit Name: Hickory clay loam, 12 to 18 percent slopes, severely eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes	No X	

Remarks:
Upland data point for both W-MJA-092019-03 & W-MJA-092019-04. Data point situated on north-facing slope, under transmission line.
Field ID: U-MJA-092019-04

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Elaeagnus angustifolia	75	Y	FACU
2. Sassafras albidum	8	N	FACU
3. Rubus allegheniensis	35	Y	FACU
4.			
5.			
	118	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Ageratina altissima	10	Y	FACU
2. Geum canadense	3	N	FAC
3. Polystichum acrostichoides	5	Y	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	18	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	3	x 3 =	9
FACU species	128	x 4 =	512
UPL species	5	x 5 =	25
Column Totals:	136 (A)		546 (B)

Prevalence Index = B/A = 4.01

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-010,011

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 12	10YR 5/4	100					Clay Loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): Yes

Type: Roots/clay

Depth (inches): 12 in.

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-010,011



South



Soil Profile

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/23/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-012

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2769

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex

Slope (%): 3 Lat: 39.12808 Long: -83.57035 Datum: WGS 84

Soil Map Unit Name: Opequon stony silt loam, 18 to 35 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Plot located in active pasture. Soils compacted and vegetation grazed.
Field ID: U-SAH-092319-01

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Poa sp.	60	Y	UPL
2. Trifolium repens	40	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 0.00 (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	40	x 4 =	160
UPL species	60	x 5 =	300
Column Totals:	100 (A)		460 (B)

Prevalence Index = B/A = 4.6

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Unidentified grass.

SOIL

Sampling Point: Upland HM-012

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 12	10YR 4/3	100					Fine sandy loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-012



West

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/24/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-013

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2769

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): LLR N Lat: 39.12145 Long: -83.55387 Datum: WGS 84

Soil Map Unit Name: Rossmoyne silt loam, 6 to 12 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Located in active agricultural field.
Field ID: U-SAH-092419-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-013

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Setaria pumila	90	Y	FAC
2. Toxicodendron radicans	5	N	FAC
3. Symphyotrichhum ericoides	5	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		310 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-013

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 5/3	90	10YR 4/6	10	C	M	Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil Photos: Upland HM-013



Soil profile



West

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-014

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.11525 Long: -83.54211 Datum: WGS 84

Soil Map Unit Name: Boston-Bratton complex, 12 to 18 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Mowed grass.

Field ID: U-SAH-092519-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-014

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Cirsium vulgare	10	N	FACU
2. Poa sp.	85	Y	UPL
3. Toxicodendron radicans	5	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	85	x 5 =	425
Column Totals:	100 (A)		480 (B)

Prevalence Index = B/A = 4.80

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Unidentified grass

SOIL Sampling Point: Upland HM-014

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 4/4	100	/				Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil Photos: Upland HM-014



General Site Photos Upland HM-014



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-015

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.11518 Long: -83.54146 Datum: WGS 84

Soil Map Unit Name: Boston-Bratton complex, 12 to 18 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Located in active agricultural field.

Field ID: H-SAH-092519-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-015

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Setaria verticillata	90	Y	FAC
2. Digitaria sanguinalis	5	N	FACU
3. Echinochloa crus-galli	5	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		305 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-015

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 3	10YR 5/4	100					Loam	
3 — 12	10YR 4/3	100					Loam	
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil Photos: Upland HM-015



soil profile



view: southeast

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-016

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Pothole Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.11149 Long: -83.53287 Datum: WGS 84

Soil Map Unit Name: Jessup silt loam, 12 to 18 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Field ID: U-SAH-092519-03

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-016

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Elaeagnus angustifolia	30	Y	FACU
2. Rubus allegheniensis	50	Y	FACU
3. Rosa multiflora	15	N	FACU
4.			
5.			
6.			
	95 = Total Cover		
50% of total cover: 48	20% of total cover: 19		
Herb Stratum (Plot size: 5')			
1. Phytolacca americana	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 3	20% of total cover: 1		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (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	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-016

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 5/3	95	10YR 4/6	5	C	M	Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil Photos: Upland HM-016



General Site Photos Upland HM-016



West

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-017

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): LLR N Lat: 39.10976 Long: -83.52915 Datum: WGS 84

Soil Map Unit Name: Algiers silt loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Located in hay field.

Field ID: U-SAH-092519-04

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-017

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Echinochloa crus-galli	20	Y	FAC
2. Agrostis perennans	50	Y	UPL
3. Digitaria sanguinalis	30	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 33.33 (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	30	x 4 =	120
UPL species	50	x 5 =	250
Column Totals:	100 (A)		430 (B)

Prevalence Index = B/A = 4.30

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-017

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 5/4	100	/				Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rock refusal

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil Photos: Upland HM-017



General Site Photos Upland HM-017



WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park 128 kV City/County: North Uniontown, Highland County Sampling Date: 09/25/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-018

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2739

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 4

Subregion (LRR or MLRA): LRR N Lat: 39.10586 Long: -83.52150 Datum: WGS 84

Soil Map Unit Name: Hickory silt loam, 18 to 25 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Located in depression

Field ID: U-SAH-092519-05

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-018

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Tridens flavus	40	Y	FACU
2. Ambrosia trifida	10	N	FAC
3. Symphyotrichum ericoides	40	Y	FACU
4. Daucus carota	10	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	80	x 4 =	320
UPL species	10	x 5 =	50
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-018

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 2	10YR 5/4	100	/				Loam	
2 – 10	10YR 5/6	100	/				Loam	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: Rock refusal

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil Photos: Upland HM-018



General Site Photos Upland HM-018



East

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/24/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-019

Investigator(s): SAH, RW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1521

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.10205 Long: -83.51303 Datum: WGS 84

Soil Map Unit Name: Boston-Bratton complex, 6 to 12 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Located in fallow field.

Field ID: U-SAH-092419-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-019

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dipsacus laciniatus	15	N	FACU
2. Symphyotrichum ericoides	10	N	FACU
3. Apocynum androsaemifolium	1	N	FACU
4. Solidago rugosa	75	Y	FAC
5. Daucus carota	5	N	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	106 = Total Cover		
50% of total cover: 53	20% of total cover: 21		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	26	x 4 =	104
UPL species	5	x 5 =	25
Column Totals:	106 (A)		354 (B)

Prevalence Index = B/A = 3.34

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-019

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 5/3	95	7.5YR 4/6	5	C	M	Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Soil Photos: Upland HM-019



soil profile



view: northeast

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-020

Investigator(s): MJA, KJD Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1521

Landform (hillslope, terrace, etc.): Mound Local relief (concave, convex, none): Rolling Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 39.10060 Long: -83.50996 Datum: WGS 84

Soil Map Unit Name: Boston-Bratton complex, 6 to 12 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on east-facing slope, in old field, under transmission line.

Field ID: U-MJA-093019-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-020

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Lespedeza cuneata	25	N	FACU
2. Andropogon virginicus	30	Y	FACU
3. Symphyotrichum pilosum	30	Y	FAC
4. Solidago canadensis	30	Y	FACU
5. Daucus carota	5	N	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	85	x 4 =	340
UPL species	5	x 5 =	25
Column Totals:	120 (A)		455 (B)

Prevalence Index = B/A = 3.79

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-020

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 8	10YR 4/4	100					Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay hard pan

Depth (inches): 8

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-020



Southwest



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 09/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-021

Investigator(s): JRM, MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1203

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.09427 Long: -83.49640 Datum: WGS 84

Soil Map Unit Name: Algiers silt loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situation in an old field, between wetland and row crops, under transmission line.

Field ID: U-MJA-093019-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-021

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Setaria faberi	60	Y	FACU
2. Cirsium arvense	10	N	FACU
3. Sorghum halepense	50	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	120	x 4 =	480
UPL species	0	x 5 =	0
Column Totals:	120 (A)		480 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-021

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 5/4	100					Clay loam	
4 — 6	10YR 4/4	100					Clay loam	
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: gravel

Depth (inches): 6

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-021



Northeast



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/02/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-022

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1520

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 39.08470 Long: -83.46695 Datum: WGS 84

Soil Map Unit Name: Opequon stony silt loam, 35 to 50 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point situated on east-facing slope, under transmission line.

Field ID: U-MJA-100219-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-022

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans nigra	30	Y	FACU
2. Quercus rubra	20	Y	FACU
3. Cercis canadensis	10	N	FACU
4.			
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Asimina triloba	8	Y	FAC
2. Rubus allegheniensis	8	Y	FACU
3.			
4.			
5.			
6.			
	16 = Total Cover		
50% of total cover: 8	20% of total cover: 3.2		
Herb Stratum (Plot size: 5')			
1. Verbesina alternifolia	15	N	FAC
2. Microstegium vimineum	45	Y	FAC
3. Impatiens capensis	10	N	FACW
4. Vernonia gigantea	8	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	78 = Total Cover		
50% of total cover: 39	20% of total cover: 15.6		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 76	x 3 = 228
FACU species 68	x 4 = 272
UPL species	x 5 =
Column Totals: 144 (A)	500 (B)

Prevalence Index = B/A = 3.47

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-022

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 4	10YR 4/3	100					Silt loam	
4 – 16	10YR 4/4	100					Silt loam	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Bedrock

Depth (inches): 16

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-022



West



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/02/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-023

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1520

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Undulating Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.08286 Long: -83.46186 Datum: WGS 84

Soil Map Unit Name: Haubstadt 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 X No _____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

PEM in ROW disturbed by grazing and rutted with hoof prints.

Field ID: U-KJD-100219-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-023

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Symphyotrichum ericoides	25	Y	FACU
2. Andropogon virginicus	30	Y	FACU
3. Setaria pumila	30	Y	FAC
4. Ambrosia artemisiifolia	40	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	125 = Total Cover		
50% of total cover: 63	20% of total cover: 25		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 25.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	95	x 4 =	380
UPL species	0	x 5 =	0
Column Totals:	125 (A)		470 (B)

Prevalence Index = B/A = 3.76

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-023

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/4	100	/				Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-023





WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/01/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-024

Investigator(s): KJD, JRM Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1638

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Undulating Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.07266 Long: -83.43217 Datum: WGS 84

Soil Map Unit Name: Bratton silt loam, 6 to 12 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Upland data point situation in an old field, between wetland and row crops, under transmission line.

Field ID: U-KJD-100119-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-024

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Solidago canadensis	60	Y	FACU
2. Festuca rubra	20	N	FACU
3. Symphyotrichum ericoides	20	N	FACU
4. Conoclinium coelestinum	20	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	120 (A)		460 (B)

Prevalence Index = B/A = 3.83

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-024

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 14	10YR 4/2	95	5YR 4/6	5	C	PL	Clay loam	Pore linings to surface, but no other
—								^signs of hydrology
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Upland HM-024



View facing north

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/02/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-025

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4024, 5019

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 39.06905 Long: -83.42041 Datum: WGS 84

Soil Map Unit Name: Opequon silt loam, 6 to 18 percent slopes, moderately eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on north-facing slope, in active cattle pasture.

Field ID: U-MJA-100219-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches): _____
Water Table Present?	Yes _____	No x	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-025

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	90	Y	FACU
2. Trifolium pratense	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species 100	x 4 = 400
UPL species	x 5 =
Column Totals: 100 (A)	400 (B)

Prevalence Index = B/A = 4

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-025

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 3/4	100					Silt loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Compaction

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-025



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/03/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-026

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 4024, 5019

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.06814 Long: -83.41786 Datum: WGS 84

Soil Map Unit Name: Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x

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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point situated in mowed field, on east-facing slope, under transmission line.

Field ID: U-MJA-100319-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-026

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Conoclinium coelestinum	3	N	FAC
2. Daucus carota	5	N	UPL
3. Schedonorus arundinaceus	70	Y	FACU
4. Setaria pumila	30	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	108 = Total Cover		

50% of total cover: 54 20% of total cover: 21.6

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	33	x 3 =	99
FACU species	70	x 4 =	280
UPL species	5	x 5 =	25
Column Totals:	108 (A)		404 (B)

Prevalence Index = B/A = 3.74

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-026

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 4	10YR 4/3	100					Loam	
4 – 18	10YR 3/2	90	10YR 4/6	10	C	M	Clay loam	Prominent redox
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 8

Hydric Soil Present? Yes X No _____

Remarks:

General Site Photos Upl-MJA-100319-01



Northeast



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/03/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-027

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1568

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Rolling Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 39.06419 Long: -83.40621 Datum: WGS 84

Soil Map Unit Name: Gasconade flaggy silty clay loam, 35 to 50 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on southwest-facing slope, in old field, under transmission line.

Field ID: U-MJA-100319-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-027

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Juniperus virginiana	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Shrub Stratum (Plot size: 15')			
1. Lonicera maackii	5	Y	UPL
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 5')			
1. Daucus carota	15	N	UPL
2. Symphyotrichum pilosum	20	N	FAC
3. Trifolium pratense	5	N	FACU
4. Schedonorus arundinaceus	80	Y	FACU
5. Plantago lanceolata	15	N	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	135 = Total Cover		
50% of total cover: 67.5	20% of total cover: 27		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species 20	x 3 = 60
FACU species 90	x 4 = 360
UPL species 35	x 5 = 175
Column Totals: 145 (A)	595 (B)

Prevalence Index = B/A = 4.10

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-027

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 — 16	10YR 3/2	100					Clay loam	
—								
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay

Depth (inches): 16

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos	W-MJA-100319-02	Upland HM-027



View: North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-028

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1568

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 1

Subregion (LRR or MLRA): LRR Lat: 39.06205 Long: -83.39949 Datum: WGS 84

Soil Map Unit Name: Algiers silt loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Data point situated on flat terrace, in old field, under transmission line.

Field ID: U-MJA-100419-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-028

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	3	N	FACU
2.			
3.			
4.			
5.			
6.			
	3 = Total Cover		
50% of total cover: 2	20% of total cover: 1		
Sapling Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 8	20% of total cover: 3		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	20	Y	FACU
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	70	Y	FACU
2. Solidago canadensis	45	Y	FACU
3. Agrimonia parviflora	15	N	FACW
4. Fallopia convolvulus	5	N	FACU
5. Persicaria sagittata	3	N	OBL
6. Symphyotrichum pilosum	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	143 = Total Cover		
50% of total cover: 72	20% of total cover: 29		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 25.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	30	x 2 =	60
FAC species	5	x 3 =	15
FACU species	143	x 4 =	572
UPL species	0	x 5 =	0
Column Totals:	181 (A)		650 (B)

Prevalence Index = B/A = 3.59

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-028

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 — 18	10YR 4/3	100					Silty loam	
—								
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-028



Southeast



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Highland Sampling Date: 10/04/2019
Applicant/Owner: AEP State: OH Sampling Point: Upland HM-029
Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 1568
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR or MLRA): LRR N Lat: 39.06023 Long: -83.39372 Datum: WGS 84
Soil Map Unit Name: Berks-Muskingum channery silt loams, 18 to 35 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Data point situated on west-facing slope, along access road, under transmission line.

Field ID: U-MJA-100419-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-029

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	80	Y	FACU
2. Symphyotrichum pilosum	20	N	FAC
3. Plantago lanceolata	15	N	UPL
4. Trifolium pratense	15	N	FACU
5. Taraxacum officinale	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	135 = Total Cover		

50% of total cover: 68 20% of total cover: 27

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.00 (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	100	x 4 =	400
UPL species	15	x 5 =	75
Column Totals:	135 (A)		535 (B)

Prevalence Index = B/A = 3.96

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-029

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 5/3	100	/				Silty loam	With gravel
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-029



North



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/03/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-030

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 7372

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Undulating Slope (%): 8

Subregion (LRR or MLRA): LRR N Lat: 39.04791 Long: -83.36686 Datum: WGS 84

Soil Map Unit Name: Bratton-Opequon complex, 8 to 15 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Fallow agricultural field/pasture

Field ID: U-KJD-100319-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-030

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Symphyotrichum ericoides	35	Y	FACU
2. Festuca rubra	50	Y	FACU
3. Solanum carolinense	10	N	FACU
4. Vernonia noveboracensis	10	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 53	20% of total cover: 21		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (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	95	x 4 =	380
UPL species	0	x 5 =	0
Column Totals:	105 (A)		400 (B)

Prevalence Index = B/A = 3.81

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-030

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 3/2	100					Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-030



View facing north



View facing east



View facing south



View facing west

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/02/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-031

Investigator(s): MJA Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 7372

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 39.04684 Long: -83.36474 Datum: WGS 84

Soil Map Unit Name: Opequon silty clay loam, 15 to 25 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on mowed terrace, under transmission line.

Field ID: U-MJA-100219-0

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-031

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Paspalum laeve	75	Y	FAC
2. Taraxacum officinale	15	N	FACU
3. Trifolium pratense	30	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		

50% of total cover: 60 20% of total cover: 24

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	75	x 3 =	225
FACU species	45	x 4 =	180
UPL species		x 5 =	
Column Totals:	120 (A)		405 (B)

Prevalence Index = B/A = 3.38

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-031

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 4	10YR 4/3	100					Silt loam	Very compacted
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Compacted/Gravel

Depth (inches): 4

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-031



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-032

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 6276

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 39.04541 Long: -83.36200 Datum: WGS 84

Soil Map Unit Name: Opequon silty clay loam, 15 to 25 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Shrubby low area between wetland and agricultural field

Field ID: U-KJD-100419-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-032

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Prunus serotina	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Shrub Stratum (Plot size: 15')			
1. Rubus idaeus	20	Y	FAC
2. Rhus copallinum	10	Y	FACU
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Verbesina alternifolia	20	Y	FAC
2. Daucus carota	10	N	UPL
3. Ageratina altissima	15	Y	FACU
4. Festuca rubra	25	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species	10	x 5 =	50
Column Totals:	110 (A)		410 (B)

Prevalence Index = B/A = 3.73

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-032

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 4/3	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rock

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-032



View of vegetation facing north



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-033

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 6276

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Flat Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 39.04356 Long: -83.35780 Datum: WGS 84

Soil Map Unit Name: Bratton-Opequon complex, 8 to 15 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Fallow farm field

Field ID: U-KJD-100419-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-033

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus tenuis	15	N	FAC
2. Andropogon virginicus	10	N	FACU
3. Setaria faberi	20	Y	UPL
4. Symphyotrichum ericoides	10	N	FACU
5. Agrostis scabra	30	Y	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 50.00 (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	20	x 4 =	80
UPL species	20	x 5 =	100
Column Totals:	85 (A)		315 (B)

Prevalence Index = B/A = 3.71

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-033

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/2	100					Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-033



View of soil profile



View facing north of vegetation in fallow field

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/04/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-034

Investigator(s): Keith D'Angiolillo, Jamie Morgan Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 16147

Landform (hillslope, terrace, etc.): Mountainslope Local relief (concave, convex, none): Concave Slope (%): 30

Subregion (LRR or MLRA): LRR N Lat: 39.04132 Long: -83.35225 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Maintained electric transmission right-of-way. Vegetation periodically mowed. Contains dense saplings on slope.

Field ID: U-KJD-100419-03

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-034

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1. Populus grandidentata	65	Y	FACU
2. Sassafras albidum	5	N	FACU
3. Quercus alba	10	N	FACU
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	20	Y	FACU
2. Smilax rotundifolia	5	Y	FAC
3.			
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	10	Y	FAC
2. Polystichum acrostichoides	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	120 (A)		465 (B)

Prevalence Index = B/A = 3.88

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-034

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 5/2	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-034



View facing west of vegetation in ROW



View of soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/07/2019

Applicant/Owner: AEP State: _____ Sampling Point: Upland HM-035

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 16147

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 39.03784 Long: -83.34535 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on south-facing slope, in shrub/old field, under transmission line.

Field ID: U-MJA-100719-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-035

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liriodendron tulipifera	45	Y	FACU
2.			
3.			
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 23	20% of total cover: 9		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rhus copallinum	35	Y	FACU
2. Rubus allegheniensis	15	Y	FACU
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 5')			
1. Polystichum acrostichoides	30	Y	FACU
2. Dichanthelium clandestinum	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 23	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	125	x 4 =	500
UPL species	0	x 5 =	0
Column Totals:	140 (A)		545 (B)

Prevalence Index = B/A = 3.89

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-035

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 5/4	100					Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-035



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/08/2019

Applicant/Owner: AEP State: _____ Sampling Point: Upland HM-036

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 39.03043 Long: -83.32730 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on north-facing slope, in old field, under transmission line.

Field ID: U-MJA-100819-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-036

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	90	Y	FAC
2. Persicaria maculosa	5	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 48	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		280 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-036

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/4	95	10YR 5/8	5	C	M	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-036



West



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: _____ Sampling Point: Upland HM-037

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 12512

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 39.02619 Long: -83.31633 Datum: WGS 84

Soil Map Unit Name: Latham silt loam, 8 to 15 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated in old field, under transmission line.

Field ID: U-MJA-100919-04

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-037

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Solidago canadensis	65	Y	FACU
2. Schedonorus arundinaceus	30	Y	FACU
3. Ageratina altissima	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		

50% of total cover: 53 20% of total cover: 21

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.00 (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	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	105 (A)		420 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-037

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/3	100	/				Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-037



East



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-038,039,040

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 10336

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.02369 Long: -83.30974 Datum: WGS 84

Soil Map Unit Name: Tilsit silt loam, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on terrace, in old field, under transmission line.

Field ID: U-MJA-100919-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-038,039,040

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Andropogon virginicus	35	Y	FACU
2. Lespedeza cuneata	25	Y	FACU
3. Poa annua	20	N	FACU
4. Setaria pumila	30	Y	FAC
5. Elaeagnus angustifolia	3	N	FACU
6. Liriodendron tulipifera	3	N	FACU
7.			
8.			
9.			
10.			
11.			
	116 = Total Cover		
50% of total cover: 58	20% of total cover: 23		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	86	x 4 =	344
UPL species	0	x 5 =	0
Column Totals:	116 (A)		434 (B)

Prevalence Index = B/A = 3.74

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-038,039,040

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 12	2.5Y 6/3	70	10YR 6/8	30	C	M	Clay loam	Prominent redox concentrations
—								
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Compacted clay

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-038,039,040



East



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/09/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-041

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 39.01970 Long: -83.29738 Datum: WGS 84

Soil Map Unit Name: Shelocta-Muse-Colyer association, steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on south-facing slope, in old field, under transmission line.

Field ID: U-MJA-100919-03

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-041

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	30	Y	FACU
2.			
3.			
4.			
5.			
6.			
	30 = Total Cover		

50% of total cover: 15 20% of total cover: 6

Herb Stratum (Plot size: 5')			
1. Dryopteris carthusiana	40	Y	FAC
2. Verbesina alternifolia	5	N	FAC
3. Acer rubrum	1	N	FAC
4. Euthamia graminifolia	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	51 = Total Cover		

50% of total cover: 26 20% of total cover: 10

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	51	x 3 =	153
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	81 (A)		273 (B)

Prevalence Index = B/A = 3.37

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-041

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 4/3	100	/				Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-041



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/10/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-042

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 8

Subregion (LRR or MLRA): LRR N Lat: 39.01661 Long: -83.28457 Datum: WGS 84

Soil Map Unit Name: Shelocta-Berks association, very steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on northwest-facing slope, in mowed field, under transmission line.

Field ID: U-MJA-101019-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-042

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Arthraxon hispidus	50	Y	FAC
2. Schedonorus arundinaceus	25	Y	FACU
3. Andropogon virginicus	20	N	FACU
4. Plantago lanceolata	15	N	UPL
5. Setaria pumila	15	N	FAC
6. Conoclinium coelestinum	5	N	FAC
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		

50% of total cover: 65 20% of total cover: 26

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	45	x 4 =	180
UPL species	15	x 5 =	75
Column Totals:	130 (A)		465 (B)

Prevalence Index = B/A = 3.58

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-042

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 16	10YR 4/3	100	/				Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay/gravel

Depth (inches): 16

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-042



South



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/10/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-043

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 39.01463 Long: -83.27775 Datum: WGS 84

Soil Map Unit Name: Shelocta-Berks association, steep NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated in old field, under transmission line.

Field ID: U-MJA-101019-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-043

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Andropogon gerardii	65	Y	FAC
2. Schedonorus arundinaceus	40	Y	FACU
3. Lespedeza cuneata	20	N	FACU
4. Ageratina altissima	15	N	FACU
5. Cirsium arvense	10	N	FACU
6. Daucus carota	5	N	UPL
7.			
8.			
9.			
10.			
11.			
	155 = Total Cover		
50% of total cover: 78	20% of total cover: 31		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	85	x 4 =	340
UPL species	5	x 5 =	25
Column Totals:	155 (A)		560 (B)

Prevalence Index = B/A = 3.61

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-043

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 4	10YR 4/2	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 4

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-043



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Adams Sampling Date: 10/11/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-044,045

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 39.01332 Long: -83.27176 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point taken on west-facing slope, in old field, under transmission line.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-044,045

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	65	Y	FACU
2. Dichanthelium clandestinum	20	N	FAC
3. Solanum carolinense	15	N	FACU
4. Ageratina altissima	15	N	FACU
5. Smilax rotundifolia	10	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	125 = Total Cover		
50% of total cover: 63	20% of total cover: 25		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	135 (A)		510 (B)

Prevalence Index = B/A = 3.78

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-044,045

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 4/4	100					Loam	
4 — 12	10YR 5/4	60	10YR 4/4	40			Loam	
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-044,045



East



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/14/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-046

Investigator(s): BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Undulating Local relief (concave, convex, none): Hummocky Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 39.00587 Long: -83.23939 Datum: WGS 84

Soil Map Unit Name: Coolville silt loam, 1 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Associated with W-BCR-101419-01 (Wetland HM-041), located in a cow pasture.

Field ID: U-BCR-101419-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-046

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	60	Y	FACU
2. Poa pratensis	30	Y	FACU
3. Trifolium repens	10	N	FACU
4. Plantago major	15	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		

50% of total cover: 58 20% of total cover: 23

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.00 (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	115	x 4 =	460
UPL species	0	x 5 =	0
Column Totals:	115 (A)		460 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-046

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 8	10YR 5/4	100					Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Hardpan

Depth (inches): 8

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-046



Soil Profile



Southeast

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike Sampling Date: 10/15/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-047

Investigator(s): BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 15464

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Undulating Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 39.00059 Long: -83.22329 Datum: WGS 84

Soil Map Unit Name: Latham-Wharton silt loams, 15 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point associated with adjacent PEM wetland. Data point within existing transmission line ROW and mowed landscape.

Field ID: U-BCR-101519-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-047

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	80	Y	FACU
2. Fatoua villosa	10	N	FAC
3. Daucus carota	15	N	UPL
4. Rubus allegheniensis	10	N	FACU
5. Symphyotrichum ericoides	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	95	x 4 =	380
UPL species	15	x 5 =	75
Column Totals:	120 (A)		485 (B)

Prevalence Index = B/A = 4.04

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-047

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	10YR 3/4	100					Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rocky

Depth (inches): 5

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-047



Soil Profile



East

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike County Sampling Date: 10/15/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-048

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 15464

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.99778 Long: -83.21791 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, steep NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Associated with W-BCR-101519-01, located at the foot of a slope in an infrequently maintained ROW.

Field ID: U-BCR-101519-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-048

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	20	Y	FACU
2.			
3.			
4.			
5.			
6.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	70	Y	FAC
2. Eutrochium purpureum	15	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	85	x 3 =	255
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	105 (A)		335 (B)

Prevalence Index = B/A = 3.19

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-048

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	10YR 3/4	100					Silty loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rocky

Depth (inches): 5

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-048



Soil profile



West



East



South

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike County Sampling Date: 10/16/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-049

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.98846 Long: -83.20111 Datum: WGS 84

Soil Map Unit Name: Wernock Variant silt loam, 3 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Associated with W-BCR-101619-02, located on a residential property on a hillside adjacent to a mowed area and a road.

Field ID: U-BCR-101619-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-049

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rhus copallinum	80	Y	FACU
2. Acer rubrum	5	N	FAC
3.			
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 17		
Herb Stratum (Plot size: 5')			
1. Toxicodendron radicans	35	Y	FAC
2. Dichanthelium clandestinum	15	N	FAC
3. Solidago canadensis	10	N	FACU
4. Equisetum arvense	40	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 66.66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	185 (A)		645 (B)

Prevalence Index = B/A = 3.49

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-049

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	10YR 4/3	95	10YR 5/8	5	C	M	Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Hardpan

Depth (inches): 5

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-049



East



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike County Sampling Date: 10/16/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-050

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.97858 Long: -83.18306 Datum: WGS 84

Soil Map Unit Name: Latham-Wharton silt loams, 15 to 25 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Associated with W-BCR-101619-01, located on a hill in an infrequently maintained ROW.

Field ID: U-BCR-101619-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-050

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	3	N	FACW
2.			
3.			
4.			
5.			
6.			
	3 = Total Cover		
50% of total cover: 2	20% of total cover: 1		
Sapling Stratum (Plot size: 15')			
1. Liriodendron tulipifera	1	N	FACU
2.			
3.			
4.			
5.			
6.			
	1 = Total Cover		
50% of total cover: 1	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	30	Y	FAC
2. Achillea millefolium	2	N	FACU
3. Potentilla indica	1	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	33 = Total Cover		
50% of total cover: 17	20% of total cover: 7		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	30	x 3 =	90
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	37 (A)		112 (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-050

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 — 2	10YR 3/2	100					Silty clay loam	
2 — 8	10YR 5/3	80					Silty clay loam	
2 — 8	10YR 3/2	20					Silty clay loam	
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Rocky

Depth (inches): 8

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-050



East



South



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Pike County Sampling Date: 10/17/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-051

Investigator(s): JFW, BCR Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 14896

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat Slope (%): 4

Subregion (LRR or MLRA): LRR N Lat: 38.95886 Long: -83.14581 Datum: WGS 84

Soil Map Unit Name: Latham-Wharton silt loams, 15 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Associated with W-BCR-101719-01, located on a hillside in an infrequently maintained ROW.

Field ID: U-BCR-101719-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-051

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	50	Y	FACU
2.			
3.			
4.			
5.			
6.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	20	Y	FAC
2. Lespedeza cuneata	5	N	FACU
3. Solidago canadensis	10	Y	FACU
4. Andropogon gerardii	10	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 23	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	95 (A)		350 (B)

Prevalence Index = B/A = 3.68

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-051

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 7	10YR 4/3	100					Loam	
7 – 12	10YR 5/4	100					Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Hardpan

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-051



West



East



Soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/22/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-052

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): None Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 38.92627 Long: -83.09734 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

upland area with generally old-field vegetation

paired with Wetland HM-052

Field ID: U-DCS-102219-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-052

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Physocarpus opulifolius	40	Y	FACW
2. Rubus allegheniensis	30	Y	FACU
3. Pinus strobus	5	N	FACU
4.			
5.			
6.			
	75 = Total Cover		
50% of total cover: 38	20% of total cover: 15		
Herb Stratum (Plot size: 5')			
1. Dichanthelium acuminatum	10	N	FAC
2. Andropogon virginicus	40	Y	FACU
3. Potentilla indica	20	Y	FACU
4. Achillea millefolium	5	N	FACU
5. Dichanthelium clandestinum	8	N	FAC
6. Monarda clinopodia	5	N	FACU
7. Pycnanthemum virginianum	5	N	FAC
8.			
9.			
10.			
11.			
	93 = Total Cover		
50% of total cover: 47	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	0
FAC species	23	x 3 =	69
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	168 (A)		489 (B)

Prevalence Index = B/A = 2.91

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-052

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 5/4	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rocks

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
Rocky

General Site Photos Upland HM-052



northeast



substrate/soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/22/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-053

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 20

Subregion (LRR or MLRA): LRR N Lat: 39.04928 Long: -83.13099 Datum: WGS 84

Soil Map Unit Name: Latham silt loam, 15 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

upland secondary growth forest hillslope

Field ID: U-DCS-102219-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-053

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus montana	60	Y	UPL
2. Quercus rubra	20	N	FACU
3. Carya ovata	30	Y	FACU
4. Pinus strobus	10	N	FACU
5.			
6.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Sapling Stratum (Plot size: 15')			
1. Quercus montana	30	Y	UPL
2. Quercus alba	30	Y	FACU
3. Carya ovata	10	N	FACU
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Fragaria vesca	10	Y	FACU
2. Quercus montana	25	Y	UPL
3. Pinus strobus	5	N	FACU
4. Toxicodendron radicans	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 23	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30')			
1. Smilax rotundifolia	60	Y	FAC
2.			
3.			
4.			
5.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	115	x 4 =	460
UPL species	115	x 5 =	575
Column Totals:	295 (A)		1230 (B)

Prevalence Index = B/A = 4.17

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-053

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1 — 0	10YR 2/1	100					Loam	organic matter
0 — 6	10YR 6/3	100					Clay loam	very dry
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rock

Depth (inches): 6

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-053



north



soil profile



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/22/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-053

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 20

Subregion (LRR or MLRA): LRR N Lat: 39.04928 Long: -83.13099 Datum: WGS 84

Soil Map Unit Name: Latham silt loam, 15 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

upland secondary growth forest hillslope

Field ID: U-DCS-102219-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-053

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus montana	60	Y	UPL
2. Quercus rubra	20	N	FACU
3. Carya ovata	30	Y	FACU
4. Pinus strobus	10	N	FACU
5.			
6.			
	120 = Total Cover		
50% of total cover: 60	20% of total cover: 24		
Sapling Stratum (Plot size: 15')			
1. Quercus montana	30	Y	UPL
2. Quercus alba	30	Y	FACU
3. Carya ovata	10	N	FACU
4.			
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Fragaria vesca	10	Y	FACU
2. Quercus montana	25	Y	UPL
3. Pinus strobus	5	N	FACU
4. Toxicodendron radicans	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	45 = Total Cover		
50% of total cover: 23	20% of total cover: 9		
Woody Vine Stratum (Plot size: 30')			
1. Smilax rotundifolia	60	Y	FAC
2.			
3.			
4.			
5.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	115	x 4 =	460
UPL species	115	x 5 =	575
Column Totals:	295 (A)		1230 (B)

Prevalence Index = B/A = 4.17

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-053

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1 — 0	10YR 2/1	100					Loam	organic matter
0 — 6	10YR 6/3	100					Clay loam	very dry
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rock

Depth (inches): 6

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-053



north



soil profile



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/21/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-054

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93 Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 38.92187 Long: -83.09181 Datum: WGS 84

Soil Map Unit Name: Coolville-Rarden silt loams, 8 to 15 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

upland area within an active T-line ROW

original field data point: U-DCS-102119-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-054

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	10	N	FACU
2. Quercus montana	35	Y	UPL
3. Acer rubrum	5	N	FAC
4. Hypericum prolificum	10	N	FACU
5.			
6.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 5')			
1. Potentilla indica	40	Y	FACU
2. Polystichum acrostichoides	15	Y	FACU
3. Monarda clinopodia	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 30')			
1. Smilax rotundifolia	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	80	x 4 =	320
UPL species	35	x 5 =	175
Column Totals:	130 (A)		540 (B)

Prevalence Index = B/A = 4.15

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-054

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 6	10YR 5/3	100					Silty clay	lots of roots
6 – 13	10YR 6/3	100					Silty clay	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: rocks

Depth (inches): 13

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-054



north



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/23/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-055

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): None Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 38.91671 Long: -83.08391 Datum: WGS 84

Soil Map Unit Name: Shelocta-Wharton-Latham association, steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland is located within a historic road.

Field ID: U-DCS-102319-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-055

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	10	Y	FACU
2. Physocarpus opulifolius	15	Y	FACW
3.			
4.			
5.			
6.			
	25 = Total Cover		
50% of total cover: 13	20% of total cover: 5		
Herb Stratum (Plot size: 5')			
1. Solidago gigantea	45	Y	FACW
2. Poa pratensis	25	Y	FACU
3. Dichanthelium acuminatum	10	N	FAC
4. Pycnanthemum flexuosum	2	N	FACW
5. Juncus tenuis	5	N	FAC
6. Daucus carota	10	N	UPL
7. Vernonia angustifolia	5	N	FACU
8.			
9.			
10.			
11.			
	102 = Total Cover		
50% of total cover: 51	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	62	x 2 =	124
FAC species	15	x 3 =	45
FACU species	40	x 4 =	160
UPL species	10	x 5 =	50
Column Totals:	127 (A)		379 (B)

Prevalence Index = B/A = 2.98

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-055

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 3/3	100					Silty loam	
—								
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: gravel

Depth (inches): 4

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-055



southwest



substrate

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 11/01/2019
Applicant/Owner: AEP State: OH Sampling Point: Upland HM-056
Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 5
Subregion (LRR or MLRA): LRR N Lat: 38.90206 Long: -83.06514 Datum: WGS 84
Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Upland data point situated on eroded hillside, occasional ATV disturbance.

Field ID: U-MJA-110119-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-056

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	40	Y	FACU
2. Symphyotrichum pilosum	35	Y	FAC
3. Solidago canadensis	15	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		

50% of total cover: 45 20% of total cover: 18

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	35	x 3 =	105
FACU species	55	x 4 =	220
UPL species		x 5 =	
Column Totals:	90 (A)		325 (B)

Prevalence Index = B/A = 3.61

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-056

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 5/4	100					Clay loam	Some gravel; disturbed
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
Very disturbed

General Site Photos Upland HM-056



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 11/01/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-057,058

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 38.90024 Long: -83.06327 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on west-facing slope, in old field, under transmission line.

Field ID: U-MJA-110119-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-057,058

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		

50% of total cover: 8 20% of total cover: 3

Herb Stratum (Plot size: 5')			
1. Dichanthelium acuminatum	65	Y	FAC
2. Andropogon virginicus	20	N	FACU
3. Solidago canadensis	10	N	FACU
4. Dichanthelium clandestinum	5	N	FAC
5. Euthamia graminifolia	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	103 = Total Cover		

50% of total cover: 52 20% of total cover: 21

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	73	x 3 =	219
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	118 (A)		399 (B)

Prevalence Index = B/A = 3.38

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-057,058

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 4	10YR 5/3	100					Loam	With gravel
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 4

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-057,058



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/31/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-059

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 38.88347 Long: -83.04069 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point on south-facing slope, in old field, under transmission line.

Field ID: U-MJA-103119-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-059

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Andropogon virginicus	60	Y	FACU
2. Schedonorus arundinaceus	35	Y	FACU
3. Pycnanthemum virginianum	15	N	FAC
4. Euthamia graminifolia	10	N	FAC
5. Cirsium arvense	5	N	FACU
6. Symphyotrichum pilosum	3	N	FAC
7.			
8.			
9.			
10.			
11.			
	128 = Total Cover		

50% of total cover: 64 20% of total cover: 26

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	28	x 3 =	84
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	128 (A)		484 (B)

Prevalence Index = B/A = 3.78

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-059

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 5/3	85	10YR 6/8	15	C	M	Clay loam	With some gravel
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-059



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/24/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-060

Investigator(s): DCS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot 14579

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): None Slope (%): 20

Subregion (LRR or MLRA): LRR N Lat: 38.87609 Long: -83.03202 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

upland in maintained transmission line ROW; typical old field vegetation on steep slope

paired with Wetland HM-060

DgcjbGB S+BAQ+/.02/7+./

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-060

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
	5 = Total Cover		
50% of total cover: 3	20% of total cover: 1		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	65	Y	FAC
2. Polystichum acrostichoides	25	N	FACU
3. Solidago gigantea	20	N	FACW
4. Symphyotrichum ericoides	10	N	FACU
5. Verbesina alternifolia	10	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	75	x 3 =	225
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	135 (A)		425 (B)

Prevalence Index = B/A = 3.15

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-060

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	2.5Y 4/2	98	10YR 5/8	2	C	M	Clay	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Upland HM-060



Soil Profile



West

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-061

Investigator(s): MJA, DMS Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Pike Lot 16035

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.86944 Long: -83.01853 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated in mowed junkyard, under transmission line.

DgcjbGB8 S+KH?+/.06/7+./

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☑ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-061

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	60	Y	FACU
2. Plantago lanceolata	15	N	UPL
3. Taraxacum officinale	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (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	65	x 4 =	260
UPL species	15	x 5 =	75
Column Totals:	80 (A)		335 (B)

Prevalence Index = B/A = 4.19

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-061

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/2	95	5YR 4/4	5	C	M	Clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Upland HM-061



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-062,063

Investigator(s): MJA, DMS Section, Township, Range: T 3 N R 21 W S 31

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.86485 Long: -82.99270 Datum: WGS 84

Soil Map Unit Name: Landes fine sandy loam, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on flat corn field, under transmission line.

Field ID: U-MJA-102819-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-062,063

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Zea mays	80	N	UPL
2. Lysimachia nummularia	10	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	80	x 5 =	400
Column Totals:	90 (A)		420 (B)

Prevalence Index = B/A = 4.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-062,063

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 3/2	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-062,063



Soil Profile



West

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-064

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 5

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.85864 Long: -82.98539 Datum: WGS 84

Soil Map Unit Name: Haymond silt loam, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point in old field, under transmission line.

DgcjbGB8 S+KH?+/.1./7+.1

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-064

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Arthraxon hispidus	80	Y	FAC
2. Schedonorus arundinaceus	30	Y	FACU
3. Solidago canadensis	25	N	FACU
4. Microstegium vimineum	20	N	FAC
5. Ageratina altissima	15	N	FACU
6. Glechoma hederacea	15	N	FACU
7.			
8.			
9.			
10.			
11.			
	185 = Total Cover		
50% of total cover: 93	20% of total cover: 37		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	85	x 4 =	340
UPL species	0	x 5 =	0
Column Totals:	185 (A)		640 (B)

Prevalence Index = B/A = 3.46

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-064

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/2	100					Silty loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-064



Soil Profile



North

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-065

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 5

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 38.85772 Long: -82.98448 Datum: WGS 84

Soil Map Unit Name: Fitchville silt loam, 0 to 3 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on north-facing slope, in old field, under transmission line.

Field ID: U-MJA-103019-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-065

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Arthraxon hispidus	60	Y	FAC
2. Schedonorus arundinaceus	20	N	FACU
3. Daucus carota	15	N	UPL
4. Andropogon virginicus	15	N	FACU
5. Solidago canadensis	5	N	FACU
6. Cirsium arvense	3	N	FACU
7.			
8.			
9.			
10.			
11.			
	118 = Total Cover		
50% of total cover: 59	20% of total cover: 24		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	43	x 4 =	172
UPL species	15	x 5 =	75
Column Totals:	118 (A)		427 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-065

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 — 4	10YR 4/3	100					Clay loam	
4 — 10	10YR 4/4	100					Clay	
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-065



South



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/30/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-066

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 5

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.85366 Long: -82.98200 Datum: WGS 84

Soil Map Unit Name: Ockley loam, 1 to 8 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated in old field, under transmission line.

Field ID: U-MJA-103019-01

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-066

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	60	Y	FACU
2. Arthraxon hispidus	35	Y	FAC
3. Microstegium vimineum	25	N	FAC
4. Verbesina alternifolia	15	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	135 = Total Cover		

50% of total cover: 68 20% of total cover: 27

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	135 (A)		465 (B)

Prevalence Index = B/A = 3.44

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-066

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 5	10YR 4/3	100					Loam	
5 – 18	10YR 3/1	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-066



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/29/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-067

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 9

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 38.83860 Long: -82.97329 Datum: WGS 84

Soil Map Unit Name: Alford silt loam, 10 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point situated on northwest-facing slope, in old field, under transmission line.

DgcjbGB8 S+KH?+/.07/7+./

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-067

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	35	Y	FACU
2. Rhus copallinum	15	Y	FACU
3.			
4.			
5.			
6.			
	50 = Total Cover		

50% of total cover: 25 20% of total cover: 10

Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	50	Y	FACU
2. Polystichum acrostichoides	25	Y	FACU
3. Daucus carota	15	N	UPL
4. Liriodendron tulipifera	10	N	FACU
5. Plantago major	10	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		

50% of total cover: 55 20% of total cover: 22

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (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	145	x 4 =	580
UPL species	15	x 5 =	75
Column Totals:	160 (A)		655 (B)

Prevalence Index = B/A = 4.09

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-067

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 10	10YR 5/3	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-067



North



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/29/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-068

Investigator(s): MJA, DMS Section, Township, Range: T 2 N R 21 W S 15

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 38.82258 Long: -82.95954 Datum: WGS 84

Soil Map Unit Name: Berks channery silt loam, 8 to 15 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point taken in old field, under tranmission line.

Field ID: U-MJA-102919-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-068

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
	15 = Total Cover		
50% of total cover: 8	20% of total cover: 3		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	60	Y	FAC
2. Andropogon virginicus	20	N	FACU
3. Dichanthelium clandestinum	35	Y	FAC
4. Ageratina altissima	10	N	FACU
5. Euthamia graminifolia	5	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	145 (A)		480 (B)

Prevalence Index = B/A = 3.31

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-068

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 2	10YR 3/1	100					Loam	
2 – 18	10YR 5/4	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-068



West



Soil Profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park 138 kV City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-069

Investigator(s): RW Section, Township, Range: T 2 N R 21 W S 26

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR or MLRA): LRR Lat: 38.80116 Long: -82.94318 Datum: WGS 84

Soil Map Unit Name: Shelocta-Brownsville association, very steep NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Associated with W-RW-102819-02, Wetland HM-069

Field ID: U-RW-102819-02

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-069

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20	Y	FAC
2. Tilia americana	25	Y	FACU
3. Liriodendron tulipifera	25	Y	FACU
4.			
5.			
6.			
	70	= Total Cover	

50% of total cover: 35 20% of total cover: 14

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1. Fraxinus americana	2	Y	FACU
2. Rhamnus cathartica	5	Y	FACU
3.			
4.			
5.			
6.			
	7	= Total Cover	

50% of total cover: 4 20% of total cover: 1

Herb Stratum (Plot size: 5')			
1. Carex sp.	20	Y	FACU
2. Rubus sp.	15	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	

50% of total cover: 18 20% of total cover: 7

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14.29 (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	92	x 4 =	368
UPL species	0	x 5 =	0
Column Totals:	112 (A)		428 (B)

Prevalence Index = B/A = 3.82

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Upland HM-069

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 — 12	10YR 3/4	100					Silty loam	
—								
—								
—								
—								
—								
—								
—								
—								
—								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Vegetation Photos: Upland HM-069



Northwest

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AEP Hillsboro to Millbrook Park City/County: Scioto Sampling Date: 10/28/2019

Applicant/Owner: AEP State: OH Sampling Point: Upland HM-070

Investigator(s): RW Section, Township, Range: S12 T1N R21W

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 4

Subregion (LRR or MLRA): LRR Lat: 38.75461 Long: -82.92780 Datum: WGS 84

Soil Map Unit Name: Haymond silt loam, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland mowed area surrounded on three sides by roads. Associated with W-RW-102819-01.

DgcjbGB8 S+PU+/.06/7+./

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: Upland HM-070

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Poa sp.	65	Y	UPL
2. Chelidonium majus	15	N	UPL
3. Rumex crispus	5	N	FAC
4. Trifolium repens	15	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	80	x 5 =	400
Column Totals:	100 (A)		475 (B)

Prevalence Index = B/A = 4.75

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: Upland HM-070

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 12	10YR 3/2	80	10YR 4/6	5	C	M	Silty loam	
0 – 12	10YR 5/3	15						
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
Fill, compacted

General Site Photos Upland HM-070



NW



soil profile

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/15/2020

Applicant/Owner: AEP State: OH Sampling Point: U-MJA-121520-04,05

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto LotNotNumbered

Landform (hillslope, terrace, etc.): Shoulder slope Local relief (concave, convex, none): Convex Slope (%): 15

Subregion (LRR or MLRA): LRR N Lat: 38.94455 Long: -83.12402 Datum: WGS 84

Soil Map Unit Name: Omu1B1: Omulga 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 X No _____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland point for Wetland HM-075 (off-ROW) and Wetland HM-076. Vegetation mowed within last year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-MJA-121520-04,05

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Andropogon virginicus	55	Y	FACU
2. Setaria pumila	35	Y	FAC
3. Schedonorus arundinaceus	25	Y	FACU
4. Trifolium pratense	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	125 = Total Cover		
50% of total cover: 63	20% of total cover: 25		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	125 (A)		465 (B)

Prevalence Index = B/A = 3.72

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: U-MJA-121520-04,05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 4	10YR 2/2	100	/				Loam	Gravel
■								
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 4

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-075,076



North



Soil Profile

Upland HM-077,078

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/15/2020

Applicant/Owner: AEP State: OH Sampling Point: U-MJA-121520-02,03

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto LotNotNumbered

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat Slope (%): 15

Subregion (LRR or MLRA): LRR N Lat: 38.93896 Long: -83.11625 Datum: WGS 84

Soil Map Unit Name: MoC2: Monongahela silt loam, 8 to 15 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Upland point for Wetlands HM-077 and HM-078. In active cow pasture.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-MJA-121520-02,03

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	60	Y	FACU
2. Andropogon virginicus	35	Y	FACU
3. Trifolium repens	15	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (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	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals:	110 (A)		440 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: U-MJA-121520-02,03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 2	10YR 4/2	98	7.5YR 4/6	2	C	PL	Clay loam	
2 ■ 12	10YR 4/6	100					Clay loam	
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Clay

Depth (inches): 12

Hydric Soil Present? **Yes** X **No** _____

Remarks:

General Site Photos Upland HM-077,078



Northeast



Soil Profile

Upland HM-080

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/15/2020

Applicant/Owner: AEP State: OH Sampling Point: U-MJA-121520-01

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto LotNotNumbered

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 38.93111 Long: -83.10469 Datum: WGS 84

Soil Map Unit Name: Lah1D1: Latham silt loam, 15 to 25 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland data point in occasionally mowed field, in power line easement.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: U-MJA-121520-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Andropogon virginicus	60	Y	FACU
2. Polystichum acrostichoides	10	N	FACU
3. Rubus allegheniensis	20	Y	FACU
4. Smilax glauca	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (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	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Mowed

SOIL Sampling Point: U-MJA-121520-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 18	10YR 5/4	98	7.5YR 5/6	2	C	M	Silty clay loam	
■								
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-080



West



Soil Profile

Upland HM-087

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Hillsboro to Millbrook Park City/County: Highland Sampling Date: 12/10/2020

Applicant/Owner: AEP State: OH Sampling Point: DP-BAO-121020-01

Investigator(s): BAO Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2511

Landform (hillslope, terrace, etc.): Floodplain; Terrace Local relief (concave, convex, none): Flat

Slope (%): 0 Lat: 39.162645 Long: -83.652279 Datum: WGS 84

Soil Map Unit Name: Sn: Sloan silt loam NWI classification: PSS1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Upland area located adjacent to Stream HM-004. Area is raised and slightly sloping away from stream. Vegetation dominated by black walnut within non-hydric soils

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juglans nigra	40	Y	FACU
2.			
3.			
4.			
5.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Juglans nigra	10	Y	FACU
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Equisetum hyemale	40	Y	FACW
2. Bidens frondosa	10	N	FACW
3. Microstegium vimineum	30	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	30	x 3 =	90
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	130 (A)		390 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-BAO-121020-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 4/4	100					silt loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area located with adjacent stream however, gently slopes away from stream bank

General Site Photos Upland HM-087



South



Soil Profile

Upland HM-088

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Hillsboro-Millbrook Park 138 kV | City/County: Highland | Sampling Date: 12/09/2020

Applicant/Owner: AEP | State: OH | Sampling Point: U-SAH-092419-01b

Investigator(s): BAO | Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2769

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave

Slope (%): 0 | Lat: 39.12163 | Long: -83.55464 | Datum: WGS 84

Soil Map Unit Name: RpC2: Rossmoyne silt loam, 6 to 12 percent slopes, eroded | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Upland swale on slope located within agricultural field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Juncus pylaei	5	N	OBL
2. Cirsium discolor	20	N	FACU
3. Asclepias syriaca	20	N	FACU
4. Elymus virginicus	60	Y	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	105	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	105 (A)		285 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: U-SAH-092419-01b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 4/3	90	7.5YR 4/6	10	C	M	Silty loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

General Site Photos Upland HM-088



East



Soil Profile

Upland HM-089

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Highland Sampling Date: 12/10/2020

Applicant/Owner: AEP State: OH Sampling Point: U-SAH-092419-01c

Investigator(s): BAO Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Highland Lot 2769

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave

Slope (%): 1 Lat: 39.12093 Long: -83.55241 Datum: WGS 84

Soil Map Unit Name: RpC2: Rossmoyne silt loam, 6 to 12 percent slopes, eroded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:
Upland swale on slope located within agricultural field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Elymus virginicus	80	Y	FACW
2. Asclepias syriaca	5	N	FACU
3. Solidago altissima	5	N	FACU
4. Daucus carota	5	N	UPL
5. Apocynum cannabinum	5	N	FAC
6.			
7.			
8.			
9.			
10.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
	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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	100 (A)		240 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: U-SAH-092419-01c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 5/4	80	10YR 6/8	20	C	M	Silty clay loam	
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

saturation was at surface

General Site Photos Upland HM-089



North



Soil Profile

Upland HM-090

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Highland Sampling Date: 12/18/2020

Applicant/Owner: AEP State: OH Sampling Point: DP-MJA-100319-01

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH96Highland Lot 4024, 5019

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat Slope (%): 25

Subregion (LRR or MLRA): LRR Lat: 39.07099 Long: -83.42703 Datum: WGS 84

Soil Map Unit Name: OtD3: Opequon clay, 6 to 18 percent slopes, severely eroded NWI classification: PUBGh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

NWI check. No wetland features present. Active horse pasture.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-MJA-100319-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	70	Y	FACU
2. Andropogon virginicus	20	N	FACU
3. Plantago lanceolata	10	N	UPL
4. Trifolium repens	10	N	FACU
5. Rosa multiflora	20	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		

50% of total cover: 65 20% of total cover: 26

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.00 (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	120	x 4 =	480
UPL species	10	x 5 =	50
Column Totals:	130 (A)		530 (B)

Prevalence Index = B/A = 4.08

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-MJA-100319-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 8	10YR 4/3	100					Clay loam	Some gravel
■								
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 8

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-090



North



Soil Profile

Upland HM-091

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Adams Sampling Date: 12/18/2020

Applicant/Owner: AEP State: OH Sampling Point: DP-MJA-121820-01

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 7372

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 30

Subregion (LRR or MLRA): LRR N Lat: 39.05075 Long: -83.37290 Datum: WGS 84

Soil Map Unit Name: OpD2: Opequon silty clay loam, 15 to 25 percent slopes, eroded NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

NWI check. No wetland features present. Steep hillside.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-MJA-121820-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	45 = Total Cover		
50% of total cover: 23	20% of total cover: 9		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dipsacus fullonum	15	N	FACU
2. Sorghastrum nutans	70	Y	FACU
3. Solidago canadensis	35	Y	FACU
4. Andropogon virginicus	15	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	135 = Total Cover		
50% of total cover: 68	20% of total cover: 27		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (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	180	x 4 =	720
UPL species	0	x 5 =	0
Column Totals:	180 (A)		720 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-MJA-121820-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 12	10YR 3/3	100					Loam	
■								
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): Yes

Type: Gravel

Depth (inches): 12

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-091



East



Soil Profile

Upland HM-092

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Adams Sampling Date: 12/18/2020

Applicant/Owner: AEP State: OH Sampling Point: DP-MJA-100219-01

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Adams Lot 7372

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 30

Subregion (LRR or MLRA): Lat: 39.04624 Long: -83.36395 Datum: WGS 84

Soil Map Unit Name: OpD2: Opequon silty clay loam, 15 to 25 percent slopes, eroded NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

NWI feature check. No wetland features present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-MJA-100219-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Celtis occidentalis	25	Y	FACU
2.			
3.			
4.			
5.			
6.			
	25 = Total Cover		

50% of total cover: 13 20% of total cover: 5

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	10 = Total Cover		

50% of total cover: 5 20% of total cover: 2

Shrub Stratum (Plot size: 15')			
1. Rubus occidentalis	15	N	FACU
2. Rosa multiflora	30	Y	FACU
3. Smilax glauca	10	N	FACU
4. Lonicera maackii	40	Y	FACU
5.			
6.			
	95 = Total Cover		

50% of total cover: 48 20% of total cover: 19

Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	30	Y	FAC
2. Elymus virginicus	20	N	FACW
3. Schedonorus arundinaceus	40	Y	FACU
4. Allium vineale	15	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		

50% of total cover: 53 20% of total cover: 21

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	30	x 3 =	90
FACU species	175	x 4 =	700
UPL species	0	x 5 =	0
Column Totals:	235 (A)		850 (B)

Prevalence Index = B/A = 3.62

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: DP-MJA-100219-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 3/2	100					Loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-092



North



Soil Profile

Upland HM-094

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park City/County: Scioto Sampling Date: 12/15/2020

Applicant/Owner: AEP State: OH Sampling Point: W-MJA-121520-06

Investigator(s): MJA, JFW Section, Township, Range: Ohio Surveys VIRGINIA MILITARY DISTRICT OH93Scioto Lot not numbered

Landform (hillslope, terrace, etc.): Outwash plain Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.93656 Long: -83.11262 Datum: WGS 84

Soil Map Unit Name: Sk: Skidmore silt loam, occasionally flooded NWI classification: R5UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Upland point taken in area recently inundated. Water ponding resulting from apparent stream reroute. Abundant water present but no hydric soils present and abundant upland vegetation still persists. Stronger wetland indicators expected to develop if wetland hydrology continues to persist.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 3.00
Water Table Present?	Yes X	No _____	Depth (inches): 3.00
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0.00

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water appears to be coming from recently redirected stream tributary. Abundant water but no hydric soils and abundant upland vegetation present.

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: W-MJA-121520-06

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Schedonorus arundinaceus	60	Y	FACU
2. Arthraxon hispidus	20	N	FAC
3. Juncus effusus	5	N	FACW
4. Carex sp.	30	Y	FACW
5. Setaria pumila	15	N	FAC
6. Rubus allegheniensis	3	N	FACU
7. Panicum virgatum	10	N	FAC
8. Dichanthelium clandestinum	15	N	FAC
9.			
10.			
11.			
	158 = Total Cover		
50% of total cover: 79	20% of total cover: 32		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	60	x 3 =	180
FACU species	63	x 4 =	252
UPL species	0	x 5 =	0
Column Totals:	158 (A)		502 (B)

Prevalence Index = B/A = 3.17

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.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Carex sp. assumed FACW due to presence of strong wetland hydrology indicators.

SOIL Sampling Point: W-MJA-121520-06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 ■ 18	10YR 4/3	95	10YR 4/4	5	C	M	Silty clay loam	
■								
■								
■								
■								
■								
■								
■								
■								
■								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Inundation must be very recent since soils have not yet developed strong hydric features. Hydric soils expected to develop if wetland hydrology persists.

General Site Photos Upland HM-094



North



South



East



West

Soil Photos: Upland HM-094



Soil Profile

Upland HM-095

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Hillsboro-Millbrook Park 138 kV City/County: Scioto Sampling Date: 12/09/2020

Applicant/Owner: AEP State: OH Sampling Point: DP-MJA-120920-01

Investigator(s): MJA, JFW Section, Township, Range: T 3N R 21W S 31

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.86708 Long: -83.00465 Datum: WGS 84

Soil Map Unit Name: No: Nolin silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Upland data point for location with inundation visible on aerial imagery. No wetland features observed on site.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: DP-MJA-120920-01

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

Herb Stratum (Plot size: 5')			
1. Amaranthus blitum	70	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		

50% of total cover: 35 20% of total cover: 14

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: 0 20% of total cover: 0

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: 0.00 (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	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	70 (A)		280 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Active row crops. Soy beans recently harvested.

SOIL Sampling Point: DP-MJA-120920-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 – 18	10YR 4/3	100					Silty clay loam	
–								
–								
–								
–								
–								
–								
–								
–								
–								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ 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): No

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

General Site Photos Upland HM-095



North



Soil Profile

Appendix B
Ohio Rapid Assessment Method for Wetlands (ORAM) Forms

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-001	**Rater(s):** Matt Abbott	**Date:** 09/16/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8.0 (max 14 pts.) | 8.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

12.0 (max 30 pts.) | 20.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [x] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Existing semi-maintained ROW

Metric 4. Habitat Alteration and Development.

9.0 (max 20 pts.) | 29.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

29.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-001	**Rater(s):** Matt Abbott	**Date:** 09/16/2019

29.0
subtotal first page

0.0 (max 10 pts.) | 29.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 (max 20 pts.) | 33 (subtotal)

Metric 6. Plant communities, interspersion, 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) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

33 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-002	**Rater(s):** MJA	**Date:** 09/17/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8.0 (max 14 pts.) | 8.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [✓] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

8.0 (max 30 pts.) | 16.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Existing semi-maintained ROW

Metric 4. Habitat Alteration and Development.

9.0 (max 20 pts.) | 25.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [✓] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-002	**Rater(s):** MJA	**Date:** 09/17/2019

25.0
subtotal first page

0.0 | 25.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 | 29 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [2] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

29 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-003	**Rater(s):** Matt Abbott	**Date:** 09/18/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

9.0 (max 14 pts.) | 9.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] 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)

Metric 3. Hydrology.

14.0 (max 30 pts.) | 23.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [x] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained T-Line ROW

Metric 4. Habitat Alteration and Development.

7.5 (max 20 pts.) | 30.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

30.5 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-003	**Rater(s):** Matt Abbott	**Date:** 09/18/2019

30.5
subtotal first page

0.0 (max 10 pts.) | 30.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 (max 20 pts.) | 34.5 (subtotal)

Metric 6. Plant communities, interspersion, 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

34.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-004	**Rater(s):** MJA	**Date:** 09/18/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

9.0 (max 14 pts.) | 9.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [✓] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

14.0 (max 30 pts.) | 23.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [✓] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Infrequently maintained T-Line ROW

Metric 4. Habitat Alteration and Development.

8.5 (max 20 pts.) | 31.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [✓] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

31.5 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-004	**Rater(s):** MJA	**Date:** 09/18/2019

31.5
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 31.5 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

5 (max 20 pts.) | 37 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [3] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

36.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-005	**Rater(s):** Matt Abbott	**Date:** 09/19/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8 (max 14 pts.) | 8 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

15 (max 30 pts.) | 23 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [x] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [x] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line row

Metric 4. Habitat Alteration and Development.

10.0 (max 20 pts.) | 33.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [x] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

33.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-005	**Rater(s):** Matt Abbott	**Date:** 09/19/2019

33.0
subtotal first page

0.0 | 33 **Metric 5. Special Wetlands.**

max 10 pts. | subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 | 37 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. | subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [2] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

37 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro- Millbrook Park, Wetland HM-006	**Rater(s):** Matt Abbott	**Date:** 09/19/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1.0 (max 14 pts.) | 1.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

12 (max 30 pts.) | 13 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [x] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Active hay field surrounding wetland

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 19.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [x] dredging
- [x] farming
- [ ] nutrient enrichment

19.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro- Millbrook Park, Wetland HM-006	**Rater(s):** Matt Abbott	**Date:** 09/19/2019

19.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 19 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

2 (max 20 pts.) | 21 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

21 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-007	**Rater(s):** Matt Abbott	**Date:** 09/19/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1 (max 14 pts.) | 1.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

6.0 (max 30 pts.) | 7.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Wetland within active hayfield & infrequently

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 13.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

13.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-007	**Rater(s):** Matt Abbott	**Date:** 09/19/2019

13.0
subtotal first page

0.0 | 13 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 15 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

15 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-008	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

5 (max 14 pts.) | 6 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [✓] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 17 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Wetland in infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

10.0 (max 20 pts.) | 27.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [✓] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [✓] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

27.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-008	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

27.0
subtotal first page

0.0 | 27 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 | 31 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [2] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

31 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park; Wetland HM-009	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8.0 (max 14 pts.) | 9 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [✓] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

13.0 (max 30 pts.) | 22 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [✓] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Wetland in infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

9.0 (max 20 pts.) | 31.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [✓] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

31.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park; Wetland HM-009	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

31.0
subtotal first page

0.0 | 31 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3 | 34 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [2] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

34 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-010	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 12.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [✓] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 23.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Wetland within infrequently maintained t-line

Metric 4. Habitat Alteration and Development.

11.0 (max 20 pts.) | 34.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [✓] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [✓] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

34.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-010	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

34.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 34.0 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

7 max 20 pts. | 41 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [3] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [✓] Moderately low (2)
- [ ] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [⊥] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

41.0 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park; Wetland HM-011	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 11 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [✓] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 22.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Wetland within infrequently maintained t-line

Metric 4. Habitat Alteration and Development.

10.0 (max 20 pts.) | 32.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [✓] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [✓] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

32.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park; Wetland HM-011	**Rater(s):** Matt Abbott	**Date:** 09/20/2019

32.0
subtotal first page

0.0 (max 10 pts.) | 32.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6 (max 20 pts.) | 38 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [3] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [✓] Moderately low (2)
- [ ] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

38 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-012	**Rater(s):** W-SAH-092319-01 PEM	**Date:** 09/23/2019

0.0 | 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

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.

- [ ] 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 | 11.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [✓] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Cattle disturbance, located in existing ROW

3.0 | 14.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [✓] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

14.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-012	**Rater(s):** W-SAH-092319-01 S. Hayes	PEM	**Date:** 09/23/2019

14.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 14.0 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

3 max 20 pts. | 17 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] Forest
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

17 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-013	**Rater(s):** W-SAH-092419-01 PEM S. Hayes	**Date:** 09/24/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

1.0 / 1.0 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.

- [ ] 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 / 8.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

3.0 / 11.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [✓] farming
- [ ] nutrient enrichment

11.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-013	**Rater(s):** W-SAH-092419-01 PEM S. Hayes	**Date:** 09/24/2019

11.0
subtotal first page

0.0 | 11.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 13 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] Forest
- [0] Mudflats
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/tussucks
- [U] 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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

S. Hayes

13 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-014	**Rater(s):** W-SAH-092519-01 PEM S. Hayes	**Date:** 09/25/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1.0 (max 14 pts.) | 1.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 12.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

5.0 (max 20 pts.) | 17.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [ ] nutrient enrichment

17.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-014	**Rater(s):** W-SAH-092519-01 PEM S. Hayes	**Date:** 09/25/2019

17.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 17.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

-2 (max 20 pts.) | 15 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- 0 Aquatic bed
- 1 Emergent
- 0 Shrub
- 0 Forest
- 0 Mudflats
- 0 Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [x] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- 0 Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

15 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-015	**Rater(s):** W-SAH-092519-02 S. Hayes	**Date:** 09/25/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

1.0 / 1.0 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.

- [ ] 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)

10.0 / 11.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

4.0 / 15.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [ ] nutrient enrichment

15.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-015	**Rater(s):** W-SAH-092519-02 S. Hayes	**Date:** 09/25/2019

15.0
subtotal first page

0.0 | 15.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1 | 16 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] Forest
- [0] Mudflats
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [✓] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

16 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-016	**Rater(s):** W-SAH-092519-03 PEM S. Hayes	**Date:** 09/25/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

8.0 / 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.

- [ ] 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)

10.0 / 18.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [✓] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other Possible excavation left behind

4.0 / 22.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

22.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-016	**Rater(s):** W-SAH-092519-03 PEM S. Hayes	**Date:** 09/25/2019

22.0
subtotal first page

0.0 | 22.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

-4 | 18 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [✓] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-017	**Rater(s):** W-SAH-092519-04 S Hayes	**Date:** 09/25/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1 (max 14 pts.) | 1.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

9.0 (max 30 pts.) | 10.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other Wetland ditch in agricultural field

Metric 4. Habitat Alteration and Development.

3.5 (max 20 pts.) | 13.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [ ] nutrient enrichment

13.5
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-017	**Rater(s):** W-SAH-092519-04 S Hayes	**Date:** 09/25/2019

13.5
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 13.5 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

1 max 20 pts. | 14.5 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [✓] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

14.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-018	**Rater(s):** W-SAH-092519-05 S. Hayes	**Date:** 09/25/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

5.0 / 5.0 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.

- [ ] 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)

13.0 / 18.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [✓] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Receives drainage of dammed pond

7.0 / 25.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-018	**Rater(s):** W-SAH-092519-05 S. Hayes	**Date:** 09/25/2019

25.0
subtotal first page

0.0 | 25.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

-3 | 22 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] Forest
- [0] Mudflats
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [✓] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

22 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: Hillsboro to Millbrook, Wetland HM-019	**Rater(s):** W-SAH-092419-02 PEM S. Hayes	**Date:** 09/24/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

7.0 / 7.0 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.

- [ ] 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)

10.0 / 17.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other Existing ROW

6.0 / 23.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [✓] selective cutting
- [✓] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

23.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Hillsboro to Millbrook, Wetland HM-019	**Rater(s):** W-SAH-092419-02 PEM S. Hayes	**Date:** 09/24/2019

23.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 23.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

-2 (max 20 pts.) | 21 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] Forest
- [0] Mudflats
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [✓] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

21 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-020	**Rater(s):** Matt Abbott	**Date:** 09/30/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

3.0 (max 14 pts.) | 3.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [✓] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

7.0 (max 30 pts.) | 10.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Infrequently maintained T line ROW

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 16.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

16.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-020	**Rater(s):** Matt Abbott	**Date:** 09/30/2019

16.0
subtotal first page

0.0 (max 10 pts.) | 16.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 (max 20 pts.) | 18 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18.0 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-021	**Rater(s):** W-MJA-093019-01 Matt Abbott	**Date:** 09/30/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

3.0 (max 14 pts.) | 4.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [✓] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

10.0 (max 30 pts.) | 14.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Infrequently maintained T line ROW

Metric 4. Habitat Alteration and Development.

7.5 (max 20 pts.) | 21.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [ ] nutrient enrichment

21.5 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-021	**Rater(s):** W-MJA-093019-01 Matt Abbott	**Date:** 09/30/2019

21.5
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 21.5 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

3 (max 20 pts.) | 24.5 (subtotal)

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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [✓] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-022	**Rater(s):** Matt Abbott	**Date:** 10/02/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

12 (max 14 pts.) | 12.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] 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)
- [x] 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)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 23.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

8.5 (max 20 pts.) | 31.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

31.5 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-022	**Rater(s):** Matt Abbott	**Date:** 10/02/2019

31.5
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 31.5 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

3 (max 20 pts.) | 34.5 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [2] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

34.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, W-KJD-100219-01	**Rater(s):** KJD, JRM	Wetland HM-023	**Date:** 10/02/2019

K. D'Angiolillo, J. Morgan

2.0 | 2.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [x] 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)

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.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

4.5 | 7.5 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [x] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other actively grazed; hoofprints in WL

3.0 | 10.5 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [x] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [x] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

10.5
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, W-KJD-100219-01	**Rater(s):** KJD, JRM	Wetland HM-023	**Date:** 10/02/2019

K. D'Angiolillo, J. Morgan

10.5
subtotal first page

0.0 (max 10 pts.) | 10.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

0 (max 20 pts.) | 10.5 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [0] Emergent
- [0] Shrub
- [0] Forest
- [0] Mudflats
- [0] Open water
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [✓] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/tussucks
- [U] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [U] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

10.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-024	**Rater(s):** KJD, JRM	W-KJD-100119-01	**Date:** 10/01/2019

K. D'Angiolillo, J. Morgan

2.0 / 2.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [✓] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

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.

- [ ] 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)

7.5 / 10.5 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

2.0 / 12.5 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [ ] nutrient enrichment

12.5
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-024	**Rater(s):** KJD, JRM	W-KJD-100119-01	**Date:** 10/01/2019

K. D'Angiolillo, J. Morgan

12.5
subtotal first page

0.0 (max 10 pts.) | 12.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6 (max 20 pts.) | 18.5 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [0] Emergent
- [1] Shrub
- [1] Forest
- [0] Mudflats
- [0] Open water
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/tussucks
- [U] 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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-025	**Rater(s):** Matt Abbott	**Date:** 10/02/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1 (max 14 pts.) | 1.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

4.0 (max 30 pts.) | 5.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Active cow pature; T-Line ROW

Metric 4. Habitat Alteration and Development.

3.0 (max 20 pts.) | 8.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [✓] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [ ] nutrient enrichment

8.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-025	**Rater(s):** Matt Abbott	**Date:** 10/02/2019

8.0
subtotal first page

0.0 | 8.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

-2.0 | 6 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [✓] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

6.0 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, W-MJA-100319-01	**Rater(s):** Matt Abbott Wetland HM-026	**Date:** 10/03/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

1.0 / 1.0 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.

- [ ] 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 / 8.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Maintained pasture in T-line ROW

7.0 / 15.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

15.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, W-MJA-100319-01	**Rater(s):** Matt Abbott Wetland HM-026	**Date:** 10/03/2019

15.0
subtotal first page

0.0 | 15.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 17 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

17 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-027	**Rater(s):** Matt Abbott	**Date:** 10/03/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8.0 (max 14 pts.) | 8.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 19.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [x] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [x] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

7.5 (max 20 pts.) | 26.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

26.5 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-027	**Rater(s):** Matt Abbott	**Date:** 10/03/2019

26.5
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 26.5 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

3 (max 20 pts.) | 29.5 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

29.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-028	**Rater(s):** Matt Abbott	**Date:** 10/04/2019

1.0 | 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [x] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

11.0 | 12.0 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.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9.0 | 21.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [x] 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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

9.0 | 30.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

30.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-028	**Rater(s):** Matt Abbott	**Date:** 10/04/2019

30.0
subtotal first page

0.0 (max 10 pts.) | 30.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5 (max 20 pts.) | 35 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [3] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✔] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

35 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-029	**Rater(s):** Matt Abbott	**Date:** 10/04/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

5.0 / 5.0 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.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [x] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

12.0 / 17.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [x] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other T-line ROW; bisected by gravel road.

6.0 / 23.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] 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

Site: AEP H-MP, Wetland HM-029	**Rater(s):** Matt Abbott	**Date:** 10/04/2019

23.0
subtotal first page

0.0 (max 10 pts.) | 23.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 (max 20 pts.) | 27 (subtotal)

Metric 6. Plant communities, interspersion, 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) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, W-KJD-100319-01	**Rater(s):** KJD, JRM	Wetland HM-030	**Date:** 10/03/2019

K. D'Angiolillo, J. Morgan

0.0 | 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

1.0 | 1.0 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.

- [ ] 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)

6.5 | 7.5 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Wetland appears to be linear excavation/bor

3.0 | 10.5 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [✓] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

10.5

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, W-KJD-100319-01	**Rater(s):** KJD, JRM	Wetland HM-030	**Date:** 10/03/2019

K. D'Angiolillo, J. Morgan

10.5
subtotal first page

0.0 | 10.5 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5 | 15.5 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- 0 Aquatic bed
- 0 Emergent
- 1 Shrub
- 0 Forest
- 0 Mudflats
- 0 Open water
- 0 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- 0 Vegetated hummucks/tussucks
- 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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

15.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-031	**Rater(s):** Matt Abbott	**Date:** 10/02/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

4 (max 14 pts.) | 4.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [x] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

8.0 (max 30 pts.) | 12.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [x] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [x] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Residential area; adjacent access road

Metric 4. Habitat Alteration and Development.

7.5 (max 20 pts.) | 19.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

19.5 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-031	**Rater(s):** Matt Abbott	**Date:** 10/02/2019

19.5
subtotal first page

0.0 (max 10 pts.) | 19.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4.0 (max 20 pts.) | 23.5 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [⊥] Amphibian breeding pools

Seasonally inundated PEM

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

23.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-032	**Rater(s):** KJD, JRM	W-KJD-100419-01	**Date:** 10/04/2019

K. D'Angiolillo, J. Morgan

Metric 1. Wetland Area (size).

3.0 (max 6 pts.) | 3.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [✓] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

2 (max 14 pts.) | 5.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [✓] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average 3-10m (<32ft) around wetland perimeter (0)

K. D'Angiolillo, J. Morgan

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)

Metric 3. Hydrology.

9.5 (max 30 pts.) | 14.5 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [ ] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

8.0 (max 20 pts.) | 22.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [✓] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [ ] nutrient enrichment

22.5
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-032	**Rater(s):** KJD, JRM	W-KJD-100419-01	**Date:** 10/04/2019

K. D'Angiolillo, J. Morgan

22.5
subtotal first page

0.0 (max 10 pts.) | 22.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

7.0 (max 20 pts.) | 29.5 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [1] Shrub
- [1] Forest
- [0] Mudflats
- [0] Open water
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

29.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-033	**Rater(s):** KJD	W-KJD-100419-02	**Date:** 10/04/2019

K. D'Angiolillo, J. Morgan

2.0 | 2.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [✓] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

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.

- [ ] 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)

6.5 | 9.5 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

7.0 | 16.5 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [✓] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

16.5

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-033	**Rater(s):** KJD	W-KJD-100419-02	**Date:** 10/04/2019

K. D'Angiolillo, J. Morgan

16.5
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 16.5 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

1 max 20 pts. | 18 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- 0 Aquatic bed
- 1 Emergent
- 0 Shrub
- 0 Forest
- 0 Mudflats
- 0 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [✓] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- 0 Vegetated hummucks/tussucks
- 1 Coarse woody debris >15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-034	**Rater(s):** KJD, JRM	W-KJD-100419-03	**Date:** 10/04/2019

K. D'Angiolillo, J. Morgan

3.0 / 3.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [✓] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

10.0 / 13.0 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.

- [✓] 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)

10.0 / 23.0 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [✓] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [✓] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

10.0 / 33.0 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [✓] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

33.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-034	**Rater(s):** KJD, JRM	W-KJD-100419-03	**Date:** 10/04/2019

K. D'Angiolillo, J. Morgan

33.0
subtotal first page

0.0 (max 10 pts.) | 33.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

7 (max 20 pts.) | 40 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- 0 Aquatic bed
- 2 Emergent
- 0 Shrub
- 2 Forest
- 0 Mudflats
- 0 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- ✓ Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- 0 Vegetated hummucks/tussucks
- 2 Coarse woody debris >15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 1 Amphibian breeding pools

Category 2 (modified)

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

40 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-035	**Rater(s):** Matt Abbott	**Date:** 10/07/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

11.0 / 11.0 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.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11.0 / 22.0 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

7.0 / 29.0 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

29.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-035	**Rater(s):** Matt Abbott	**Date:** 10/07/2019

29.0
subtotal first page

0.0 | 29.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 31 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✔] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

31 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-036	**Rater(s):** Matt Abbott	**Date:** 10/08/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 11.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

6.0 (max 30 pts.) | 17.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 23.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] 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

Site: AEP H-MP, Wetland HM-036	**Rater(s):** Matt Abbott	**Date:** 10/08/2019

23.0
subtotal first page

0.0 | 23.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 25 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✔] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

25 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-037	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8.0 (max 14 pts.) | 8.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 19.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [x] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

11.5 (max 20 pts.) | 30.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [x] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

30.5 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-037	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

30.5
subtotal first page

0.0 (max 10 pts.) | 30.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5 (max 20 pts.) | 35.5 (subtotal)

Metric 6. Plant communities, interspersion, 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

35.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-038	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 11.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7.0 (max 30 pts.) | 18.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [x] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 24.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

24.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-038	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

24.0
subtotal first page

0.0 (max 10 pts.) | 24.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 (max 20 pts.) | 26 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
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3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

26 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-039,040	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

11.0 / 11.0 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.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9.0 / 20.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [x] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

7.0 / 27.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

27.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-039,040	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

27.0
subtotal first page

0.0 (max 10 pts.) | 27.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5 (max 20 pts.) | 32 (subtotal)

Metric 6. Plant communities, interspersion, 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

32 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-041	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8 (max 14 pts.) | 8.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [✓] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 19.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [✓] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 25.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-041	**Rater(s):** Matt Abbott	**Date:** 10/09/2019

25.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 25.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

2 (max 20 pts.) | 27 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27.0 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-042	**Rater(s):** Matt Abbott	**Date:** 10/10/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

8.0 / 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.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7.0 / 15.0 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [x] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [x] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Drained via tiles ~8 above surface; T-Line ROW

6.0 / 21.0 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [x] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [x] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [x] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

21.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-042	**Rater(s):** Matt Abbott	**Date:** 10/10/2019

21.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 21.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

3 (max 20 pts.) | 24 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-043	**Rater(s):** Matt Abbott	**Date:** 10/10/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11 (max 14 pts.) | 11.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

8.0 (max 30 pts.) | 19.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

10.0 (max 20 pts.) | 29.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [x] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

29.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-043	**Rater(s):** Matt Abbott	**Date:** 10/10/2019

29.0
subtotal first page

0.0 | 29.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 31.0 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

31.0 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-044	**Rater(s):** Matt Abbott	**Date:** 10/11/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

3.0 (max 14 pts.) | 3.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [x] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7.0 (max 30 pts.) | 10.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [x] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other T-line ROW; downstream of cow pasture

Metric 4. Habitat Alteration and Development.

6.5 (max 20 pts.) | 16.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [x] dredging
- [x] farming
- [ ] nutrient enrichment

16.5 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-044	**Rater(s):** Matt Abbott	**Date:** 10/11/2019

16.5
subtotal first page

0.0 (max 10 pts.) | 16.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 (max 20 pts.) | 18.5 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

18.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

Site: AEP H-MP, Wetland HM-045	**Rater(s):** Matt Abbott	**Date:** 10/11/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

11.0 / 11.0 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.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

14.0 / 25.0 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [x] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [ ] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [x] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line ROW

11.0 / 36.0 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [x] 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)
- [x] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

36.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-045	**Rater(s):** Matt Abbott	**Date:** 10/11/2019

36.0
subtotal first page

0.0 | 36.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

8 | 44 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [1] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✔] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] 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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

44 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: Hillsboro-Millbrook Park 138 kV	**Rater(s):** Wetland HM-046 Brian Robertson	**Date:** 10/14/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 12.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [✓] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

8.0 (max 30 pts.) | 20.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [✓] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

8.0 (max 20 pts.) | 28.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [✓] clearcutting
- [✓] selective cutting
- [✓] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

28.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Hillsboro-Millbrook Park 138 kV	**Rater(s):** Wetland HM-046 Brian Robertson	**Date:** 10/14/2019

28.0
subtotal first page

0.0 (max 10 pts.) | 28.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5 (max 20 pts.) | 33 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [2] Amphibian breeding pools

Category 2

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

33 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-047	**Date:** 10/15/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

3.0 (max 14 pts.) | 3.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

12.0 (max 30 pts.) | 15.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [x] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [x] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [x] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 21.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [x] clearcutting
- [ ] selective cutting
- [x] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

21.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-047	**Date:** 10/15/2019

21.0
subtotal first page

0.0 | 21.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 | 25 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [1] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

25 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson HM-048	**Date:** 10/15/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 12 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [✓] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

10.5 (max 30 pts.) | 22.5 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [✓] filling/grading
- [✓] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

8.0 (max 20 pts.) | 30.5 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

30.5 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson HM-048	**Date:** 10/15/2019

30.5
subtotal first page

0.0 | 30.5 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4 | 34.5 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummucks/tussucks
- [1] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Category 2

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

34.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-049	**Date:** 10/10/2019

0.0 | 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

5.0 | 5.0 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.

- [ ] 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)

6.5 | 11.5 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [✓] road bed/RR track
- [ ] dredging
- [ ] other_____

6.0 | 17.5 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [✓] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

17.5

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-049	**Date:** 10/10/2019

17.5
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 17.5 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

3 max 20 pts. | 20.5 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

20.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-050	**Date:** 10/16/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 11.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

6.0 (max 30 pts.) | 17.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

7.0 (max 20 pts.) | 24.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [x] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

24.0 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-050	**Date:** 10/16/2019

24.0
subtotal first page

0.0 | 24.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3 | 27 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-051	**Date:** 10/17/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

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.

- [ ] 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)

5.0 / 8.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [✓] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [✓] filling/grading
- [✓] road bed/RR track
- [ ] dredging
- [ ] other_____

3.0 / 11.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

11.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park 138 kV	**Rater(s):** Brian Robertson Wetland HM-051	**Date:** 10/17/2019

11.0
subtotal first page

0.0 max 10 pts. | 11.0 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 max 20 pts. | 13 subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [1] Aquatic bed
- [ ] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

13 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-052	**Rater(s):** D. Stanley	W-DCS-102219-02	**Date:** 10/22/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

5.0 (max 14 pts.) | 5.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

12.0 (max 30 pts.) | 17.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other within active T-line ROW

Metric 4. Habitat Alteration and Development.

8.0 (max 20 pts.) | 25.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [✓] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-052	**Rater(s):** D. Stanley	W-DCS-102219-02	**Date:** 10/22/2019

25.0
subtotal first 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 1 Qualitative Rating (-10)

2 | 27
max 20 pts. | subtotal

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-053	**Rater(s):** W-DCS-102219-01 D. Stanley	**Date:** 10/22/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

6.0 (max 14 pts.) | 7.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [✓] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

13.0 (max 30 pts.) | 20 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [✓] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [ ] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other within active T-line ROW

Metric 4. Habitat Alteration and Development.

8.0 (max 20 pts.) | 28.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [✓] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

28.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-053	**Rater(s):** W-DCS-102219-01 D. Stanley	**Date:** 10/22/2019

28.0
subtotal first page

0.0 (max 10 pts.) | 28.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 (max 20 pts.) | 30 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/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 vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

30 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-054	**Rater(s):** D. Stanley	W-DCS-102119-01	**Date:** 10/21/2019

0.0 | 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

5.0 | 5.0 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.

- [ ] 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 | 12.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other within an active T-line ROW

7.0 | 19.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [✓] clearcutting
- [✓] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

19.0

subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-054	**Rater(s):** D. Stanley	W-DCS-102119-01	**Date:** 10/21/2019

19.0
subtotal first page

0.0 | 19.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 21 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

21 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-055	**Rater(s):** D. Stanley	W-DCS-102319-01	**Date:** 10/23/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

5.0 (max 14 pts.) | 5.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

6.0 (max 30 pts.) | 11.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [✓] road bed/RR track
- [ ] dredging
- [✓] other within active T-line ROW

Metric 4. Habitat Alteration and Development.

7.0 (max 20 pts.) | 18.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [✓] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

18.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-055	**Rater(s):** D. Stanley	W-DCS-102319-01	**Date:** 10/23/2019

18.0
subtotal first page

0.0 | 18.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 20 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

20 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-056	**Rater(s):** Matt Abbott	**Date:** 11/01/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

4.0 / 4.0 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.

- [ ] 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 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [✓] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [✓] dredging
- [ ] other Adjacent to ATV access on eroded hillside

3.0 / 14.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

14.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-056	**Rater(s):** Matt Abbott	**Date:** 11/01/2019

14.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 14.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

2 (max 20 pts.) | 16 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

16 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-057	**Rater(s):** Matt Abbott	**Date:** 11/01/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

7.0 / 7.0 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.

- [ ] 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 / 14.0 Metric 3. Hydrology.

max 30 pts. subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [✓] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Eroded hillside, occasional ATV disturbance

3.0 / 17.0 Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

17.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-057	**Rater(s):** Matt Abbott	**Date:** 11/01/2019

17.0
subtotal first page

0.0 (max 10 pts.) | 17.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 (max 20 pts.) | 19 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

19 **GRAND TOTAL (max 100 pts)**

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last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-058	**Rater(s):** Matt Abbott	**Date:** 11/01/2019

0.0 | 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

7.0 | 7.0 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.

- [ ] 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 | 14.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [✓] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Eroded hillside, occasional ATV disturbance

3.0 | 17.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

17.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-058	**Rater(s):** Matt Abbott	**Date:** 11/01/2019

17.0
subtotal first page

0.0 (max 10 pts.) | 17.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 (max 20 pts.) | 19 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

19 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-059	**Rater(s):** Matt Abbott	**Date:** 10/31/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

10.0 (max 14 pts.) | 10.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [✓] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

6.0 (max 30 pts.) | 16.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other T-line ROW; adjacent to ATV access

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 22.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

22.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-059	**Rater(s):** Matt Abbott	**Date:** 10/31/2019

22.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 22.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

2 (max 20 pts.) | 24 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-60	**Rater(s):** D. Stanley	W-DCS-102419-01	**Date:** 10/24/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

5.0 / 5.0 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.

- [ ] 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)

6.0 / 11.0 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other within active T-line ROW, water being trapped

7.0 / 18.0 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [ ] clearcutting
- [✓] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

18.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-60	**Rater(s):** D. Stanley	W-DCS-102419-01	**Date:** 10/24/2019

18.0
subtotal first page

0.0 | 18.0 **Metric 5. Special Wetlands.**

max 10 pts. subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 | 20 **Metric 6. Plant communities, interspersion, microtopography.**

max 20 pts. subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [U] Vegetated hummucks/tussucks
- [U] Coarse woody debris >15cm (6in)
- [U] Standing dead >25cm (10in) dbh
- [U] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

20 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-061	**Rater(s):** Matt Abbott	**Date:** 10/28/2019

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

1.0 / 1.0 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.

- [ ] 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)

6.0 / 7.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Auto junkyard; maintained t-line ROW

5.0 / 12.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

12.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-061	**Rater(s):** Matt Abbott	**Date:** 10/28/2019

12.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 12.0 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

4 max 20 pts. | 16 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [1] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

16 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-062,063	**Rater(s):** Matt Abbott	**Date:** 10/28/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1.0 (max 14 pts.) | 2 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

7.0 (max 30 pts.) | 9 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Roww crops to west, highway to east

Metric 4. Habitat Alteration and Development.

10.0 (max 20 pts.) | 19.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [✓] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [✓] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

19.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-062,063	**Rater(s):** Matt Abbott	**Date:** 10/28/2019

19.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 19 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

10 (max 20 pts.) | 29 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [2] Shrub
- [ ] Forest
- [1] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [⊥] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [⊥] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

29 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-064	**Rater(s):** Matt Abbott	**Date:** 10/30/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

6.0 (max 14 pts.) | 7.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [✓] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 18.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Infrequently maintained t-line ROW, near wa

Metric 4. Habitat Alteration and Development.

7.0 (max 20 pts.) | 25.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [✓] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-064	**Rater(s):** Matt Abbott	**Date:** 10/30/2019

25.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 25.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

2 (max 20 pts.) | 27 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [✓] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [I] Amphibian breeding pools

Scattered pockets of standing water

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-065	**Rater(s):** Matt Abbott	**Date:** 10/30/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8.0 (max 14 pts.) | 9.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [✓] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [✓] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

8.0 (max 30 pts.) | 17.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Infrequently maintained t-line ROW

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 23.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

23.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-065	**Rater(s):** Matt Abbott	**Date:** 10/30/2019

23.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 23.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

1 (max 20 pts.) | 24 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [✓] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-066	**Rater(s):** Matt Abbott	**Date:** 10/30/2019

1.0 / 1.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

11.0 / 12.0 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.

- [✓] 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)

13.0 / 25.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Infrequently maintained t-line ROW

6.0 / 31.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [✓] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [✓] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

31.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-066	**Rater(s):** Matt Abbott	**Date:** 10/30/2019

31.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 31.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

2 (max 20 pts.) | 33 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

33 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP-H-MP, Wetland HM-067	**Rater(s):** Matt Abbott	**Date:** 10/29/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11 (max 14 pts.) | 11 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

11.0 (max 30 pts.) | 22 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Infrequently maintained t-line row

Metric 4. Habitat Alteration and Development.

6.0 (max 20 pts.) | 28.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

28.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP-H-MP, Wetland HM-067	**Rater(s):** Matt Abbott	**Date:** 10/29/2019

28.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 28.0 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

4 max 20 pts. | 32 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [✓] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [⊥] Amphibian breeding pools

Small pocket of standing water at seep source

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

32 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-068	**Rater(s):** Matt Abbott	**Date:** 10/29/2019

Metric 1. Wetland Area (size).

1.0 (max 6 pts.) | 1.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [x] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11.0 (max 14 pts.) | 12.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

9.0 (max 30 pts.) | 21.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [x] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [ ] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Light ATV traffic; t-line row

Metric 4. Habitat Alteration and Development.

8.0 (max 20 pts.) | 29.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [x] 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)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

29.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP H-MP, Wetland HM-068	**Rater(s):** Matt Abbott	**Date:** 10/29/2019

29.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 29.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

5 (max 20 pts.) | 34 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [✓] Moderately low (2)
- [ ] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [I] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

34 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-069	**Rater(s):** R. Wnuk	W-RW-102819-02	**Date:** 10/28/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

14.0 (max 14 pts.) | 14.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [✓] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [✓] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

14.0 (max 30 pts.) | 28.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other In ROW

Metric 4. Habitat Alteration and Development.

10.0 (max 20 pts.) | 38.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [✓] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [✓] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [✓] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [✓] nutrient enrichment

38.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-069	**Rater(s):** R. Wnuk	W-RW-102819-02	**Date:** 10/28/2019

38.0
subtotal first page

0.0 | 38.0
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 1 Qualitative Rating (-10)

-2 | 36
max 20 pts. | subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] Forest
- [0] Mudflats
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [✓] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [U] Vegetated hummucks/tussucks
- [U] Coarse woody debris >15cm (6in)
- [U] Standing dead >25cm (10in) dbh
- [U] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

36 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-070	**Rater(s):** R. Wnuk	W-RW-102819-01	**Date:** 10/28/2019

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [✓] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1.0 (max 14 pts.) | 1.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [✓] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), 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)

Metric 3. Hydrology.

9.0 (max 30 pts.) | 10.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [✓] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [✓] road bed/RR track
- [ ] dredging
- [✓] other mowing

Metric 4. Habitat Alteration and Development.

3.0 (max 20 pts.) | 13.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [✓] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [✓] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

13.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: AEP Hillsboro-Millbrook Park, Wetland HM-070	**Rater(s):** R. Wnuk	W-RW-102819-01	**Date:** 10/28/2019

13.0
subtotal first page

0.0 (max 10 pts.) | 13.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

-2 (max 20 pts.) | 11 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [0] Aquatic bed
- [1] Emergent
- [0] Shrub
- [0] Forest
- [0] 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 to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [✓] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [0] Vegetated hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

11 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-076, W-MJA-121520-04	**Rater(s):** Matt Abbott	**Date:** 12/15/2020

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

5.0 / 5.0 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.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [x] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

6.5 / 11.5 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [x] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other_____

7.0 / 18.5 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

18.5
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-076, W-MJA-121520-04	**Rater(s):** Matt Abbott	**Date:** 12/15/2020

18.5
subtotal first page

0.0 (max 10 pts.) | 18.5 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3 (max 20 pts.) | 22 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [I] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

21.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-077, W-MJA-121520-03	**Rater(s):** Matt Abbott	**Date:** 12/15/2020

1.0 / 1.0 Metric 1. Wetland Area (size).

max 6 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [✓] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

1.0 / 2.0 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.

- [ ] 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)

6.0 / 8.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [✓] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

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)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [✓] <0.4m (<15.7in) (1)

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)

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)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [✓] other Cattle disturbance

4.0 / 12.0 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [✓] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [✓] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [✓] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [✓] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [✓] dredging
- [✓] farming
- [✓] nutrient enrichment

12.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-077, W-MJA-121520-03	Rater(s): Matt Abbott	Date: 12/15/2020

12.0
subtotal first page

Metric 5. Special Wetlands.

0.0 max 10 pts. | 12.0 subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

2 max 20 pts. | 14 subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

14 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-078, W-MJA-121520-02	**Rater(s):** Matt Abbott	**Date:** 12/15/2020

Metric 1. Wetland Area (size).

0.0 (max 6 pts.) | 0.0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

7 (max 14 pts.) | 7.0 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

10.0 (max 30 pts.) | 17.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

7.0 (max 20 pts.) | 24.0 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

24.0 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-078, W-MJA-121520-02	Rater(s): Matt Abbott	Date: 12/15/2020

24.0
subtotal first page

0.0 (max 10 pts.) | 24.0 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

-2 (max 20 pts.) | 22 (subtotal)

Metric 6. Plant communities, interspersion, 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)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [✓] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

22 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-080, W-MJA-121520-01	**Rater(s):** Matt Abbott	**Date:** 12/15/2020

0.0 / 0.0 Metric 1. Wetland Area (size).

max 6 pts. / subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

7.0 / 7.0 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.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] 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)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

8.0 / 15.0 Metric 3. Hydrology.

max 30 pts. / subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [x] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [x] other Old erosion feature in historically cultivated fi

6.0 / 21.0 Metric 4. Habitat Alteration and Development.

max 20 pts. / subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [x] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

21.0
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland HM-080, W-MJA-121520-01	**Rater(s):** Matt Abbott	**Date:** 12/15/2020

21.0
subtotal first page

Metric 5. Special Wetlands.

0.0 (max 10 pts.) | 21.0 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

3 (max 20 pts.) | 24 (subtotal)

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [1] Amphibian breeding pools

Category 1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

Appendix C
Qualitative Habitat Evaluation Index (QHEI) Stream Data Forms

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 48

Stream & Location: AEP Hillsboro to Millbrook Park; S-MJA-091619-01; Stream HM-001 **RM:** _____ **Date:** 09/16/2019

Scorers Full Name & Affiliation: Matt Abbott, Jacobs Engineering

River Code: 05060003 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 39.17231309 / -83.67517124 *Office verified location* ☑

1] *SUBSTRATE* Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]	5		☐ ☐ DETRITUS [3]	5	
☑ ☐ COBBLE [8]	30		☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]	15		☐ ☐ SILT [2]	15	
☐ ☑ SAND [6]	30		☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☑ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☑ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ☑ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS
- ☑ EXTENSIVE [-2]
- ☑ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate 14.5 *Maximum 20*

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.

_____ UNDERCUT BANKS [1]	_____ POOLS > 70cm [2]	_____ OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1]	_____ ROOTWADS [1]	_____ AQUATIC MACROPHYTES [1]
1 SHALLOWS (IN SLOW WATER) [1]	_____ BOULDERS [1]	1 LOGS OR WOODY DEBRIS [1]
_____ ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☑ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20 6

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 9

4] *BANK EROSION AND RIPARIAN ZONE* Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

L	R	EROSION
☑	☑	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

L	R	RIPARIAN WIDTH
☐	☐	WIDE > 50m [4]
☐	☑	MODERATE 10-50m [3]
☑	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

L	R	FLOOD PLAIN QUALITY
☐	☐	FOREST, SWAMP [3]
☑	☑	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☑	☑	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10 6.5

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]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☑ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ 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
- ☐ 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 0

6] *GRADIENT* (33 ft/mi)

DRAINAGE AREA (1.18 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☑ HIGH - VERY HIGH [10-6]

%POOL: 40 **%GLIDE:** 60 **%RUN:** 0 **%RIFFLE:** 0

Gradient Maximum 10 8

A] SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Intermittent stream, flowing across transmission line easement.

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☑ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER

37 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

CANOPY

- ☑ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

pass 1st _____ cm

pass 2nd _____ cm

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] ISSUES

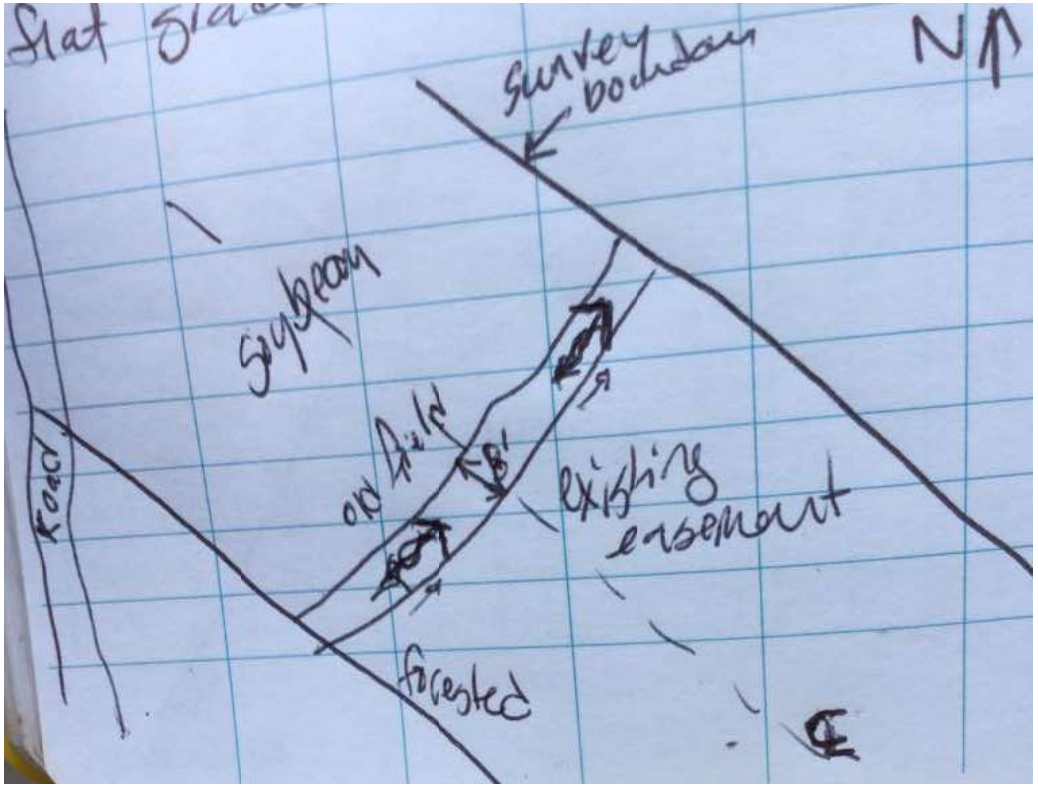
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width 6'
- $\bar{x}$ depth
- max. depth 22"
- $\bar{x}$ bankfull width 8'
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Site Photos



Downstream / NE



Upstream / SW



Substrate

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 57.25

Stream & Location: AEP Hillsboro-Millbrook Park; S-MJA-091719-03; Stream HM-004 **RM:** _____ **Date:** 09/17/2019

Scorers Full Name & Affiliation: Matt Abbott, Jacobs Engineering

River Code: 05060003 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 39.16232 / -83.65239 **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
☐ ☐ BLDR /SLABS [10]			☑ ☐ HARDPAN [4]	55	
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]	5		☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]	5		☐ ☑ SILT [2]	20	
☐ ☐ SAND [6]	15		☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☑ 3 or less [0]

ORIGIN		QUALITY	
☑ LIMESTONE [1]	SILT	☐ HEAVY [-2]	
☐ TILLS [1]		☑ MODERATE [-1]	
☐ WETLANDS [0]		☑ NORMAL [0]	
☑ HARDPAN [0]		☐ FREE [1]	
☐ SANDSTONE [0]	EMBEDDEDNESS	☐ EXTENSIVE [-2]	
☐ RIP/RAP [0]		☑ MODERATE [-1]	
☐ LACUSTURINE [0]		☐ NORMAL [0]	
☐ SHALE [-1]		☐ NONE [1]	
☐ COAL FINES [-2]			

Substrate 4.50 *Maximum 20*

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.

2	UNDERCUT BANKS [1]	____	POOLS > 70cm [2]	____	OXBOWS, BACKWATERS [1]
3	OVERHANGING VEGETATION [1]	1	ROOTWADS [1]	____	AQUATIC MACROPHYTES [1]
____	SHALLOWS (IN SLOW WATER) [1]	____	BOULDERS [1]	1	LOGS OR WOODY DEBRIS [1]
1	ROOTMATS [1]				

AMOUNT Check ONE (*Or 2 & average*)

☑ EXTENSIVE >75% [11]
☑ MODERATE 25-75% [7]
☐ SPARSE 5-<25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

Cover 14 *Maximum 20*

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☑ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☑ GOOD [5]	☑ RECOVERED [4]	☑ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☑ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel 14.5 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

EROSION L	EROSION R	
☑	☐	NONE / LITTLE [3]
☑	☑	MODERATE [2]
☐	☑	HEAVY / SEVERE [1]

RIPARIAN WIDTH L	RIPARIAN WIDTH R	
☐	☐	WIDE > 50m [4]
☑	☑	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY L	FLOOD PLAIN QUALITY R	
☑	☐	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

Riparian 7.2 *Maximum 10*

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 7 *Maximum 12*

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]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0] ☐ EXTENSIVE [-1]

Comments

Riffle / Run 0 *Maximum 8*

6] GRADIENT

(20 ft/mi)

☐ VERY LOW - LOW [2-4]
☐ MODERATE [6-10]
☑ HIGH - VERY HIGH [10-6]

DRAINAGE AREA (3.73 mi²)

%POOL: 30 %GLIDE: 0
%RUN: 70 %RIFFLE: 0

Gradient 10 *Maximum 10*

A] SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Perennial stream, flows in and out of transmission line easement.

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER

128 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☑ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

1st pass _____ cm

2nd _____ cm

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☑ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

	AREA	DEPTH
POOL:	☐ >100ft²	☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] ISSUES

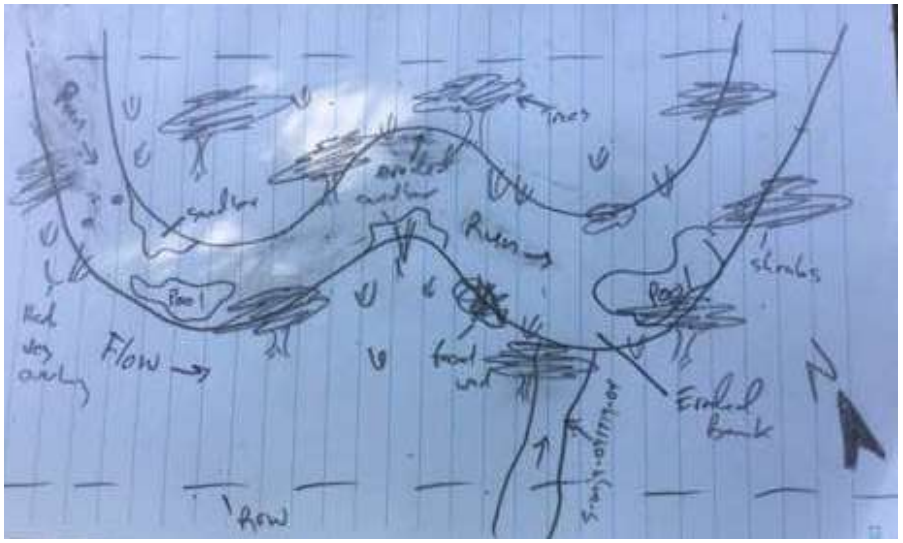
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width	15
$\bar{x}$ depth	
max. depth	30
$\bar{x}$ bankfull width	18
bankfull $\bar{x}$ depth	
W/D ratio	
bankfull max. depth	
floodprone x^2 width	
entrench. ratio	

Legacy Tree:

Stream Drawing:



Site Photos



Upstream



Downstream



Substrate

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 44

Stream & Location: Hillsboro-Millbrook Park 138 kV, S-SAH-092219-01, Stream HM-019 **RM:** **Date:** 09/22/2019

Scorers Full Name & Affiliation: Sara Hayes, Jacobs Engineering

River Code: 5060003 **STORET #:** **Lat./ Long.:** (NAD 83 - decimal °) 39.145299 / -83.611724 **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
☐ BLDR /SLABS [10]			☐ HARDPAN [4]		
☐ BOULDER [9]			☐ DETRITUS [3]		
☐ COBBLE [8]			☐ MUCK [2]		
☑ GRAVEL [7]			☐ SILT [2]		
☐ SAND [6]			☐ ARTIFICIAL [0]		
☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☑ 4 or more [2] ☐ 3 or less [0]

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☑ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ NONE [1]

Substrate 15 *Maximum 20*

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.

1	UNDERCUT BANKS [1]	0	POOLS > 70cm [2]	0	OXBOWS, BACKWATERS [1]
2	OVERHANGING VEGETATION [1]	0	ROOTWADS [1]	0	AQUATIC MACROPHYTES [1]
0	SHALLOWS (IN SLOW WATER) [1]	0	BOULDERS [1]	1	LOGS OR WOODY DEBRIS [1]
0	ROOTMATS [1]				

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☑ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Cover 6 *Maximum 20*

Comments

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]

Channel 10 *Maximum 20*

Comments

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION L	EROSION R	
☐	☐	NONE / LITTLE [3]
☑	☑	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH L	RIPARIAN WIDTH R	
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☑	NARROW 5-10m [2]
☑	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY L	FLOOD PLAIN QUALITY R	
☐	☐	FOREST, SWAMP [3]
☑	☑	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☑	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian 5 *Maximum 10*

Comments

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]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☑ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact ☐
Secondary Contact ☐
(circle one and comment on back)

Pool / Current 4 *Maximum 12*

Comments

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]

Riffle / Run 0 *Maximum 8*

Comments

6] GRADIENT

(30 ft/mi)

DRAINAGE AREA

(0.77 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☑ HIGH - VERY HIGH [10-6]

%POOL: 40 **%GLIDE:** 60 **%RUN:** **%RIFFLE:**

Gradient 10 *Maximum 10*

A] 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

40 meters

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 pass _____ cm

2nd _____ cm

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☑ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Reach is located in an existing transmission line ROW. No signs of recreational use was observed. This stream is a perennial waterbody.

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] 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 H20 / TILE / H20 TABLE

ACID / MINE / QUARRY / FLOW

NATURAL / WETLAND / STAGNANT

PARK / GOLF / LAWN / HOME

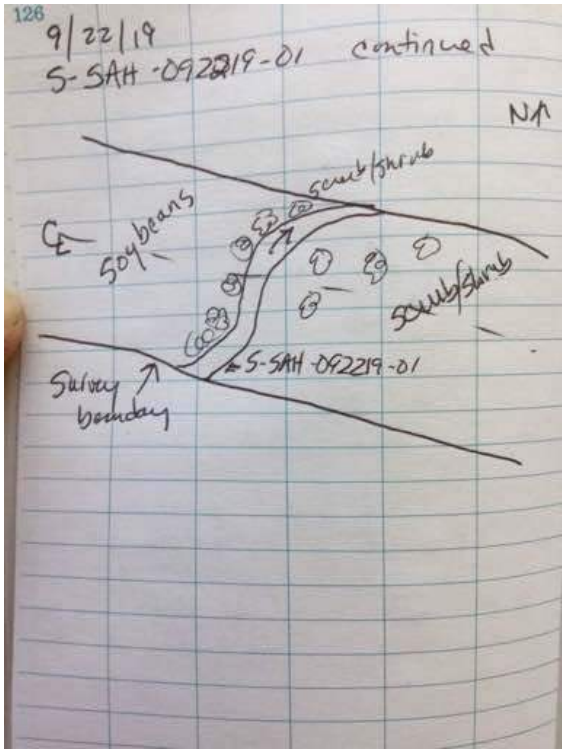
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth 12
- $\bar{x}$ bankfull width 6
- bankfull $\bar{x}$ depth 2
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Site Photos



upstream/ SW



downstream / NE



substrate

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 45.5

Stream & Location: AEP Hillsboro - Millbrook Park 138kV, S-SAH-092219-03; Stream HM-021 **RM:** _____ **Date:** 09/22/2019

UNT to South Fork Rocky Fork **Scorers Full Name & Affiliation:** Sara Hayes / Jacobs Engineering

River Code: 5060003 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 39.14316062 / -83.60659718 **Office verified location** ☑

1] SUBSTRATE

Check **ONLY Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ BLDR /SLABS [10]			☐ HARDPAN [4]		
☐ BOULDER [9]			☐ DETRITUS [3]		
☐ COBBLE [8]			☐ MUCK [2]		
☐ GRAVEL [7]			☐ SILT [2]		
☑ SAND [6]			☐ ARTIFICIAL [0]		
☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☑ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☑ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ NONE [1]

Comments

Substrate 15 *Maximum 20*

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.

1 UNDERCUT BANKS [1]	0 POOLS > 70cm [2]	0 OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1]	0 ROOTWADS [1]	0 AQUATIC MACROPHYTES [1]
1 SHALLOWS (IN SLOW WATER) [1]	0 BOULDERS [1]	1 LOGS OR WOODY DEBRIS [1]
0 ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☑ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover 7 *Maximum 20*

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 10 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION L	EROSION R	
☐	☐	NONE / LITTLE [3]
☑	☑	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH L	RIPARIAN WIDTH R	
☐	☐	WIDE > 50m [4]
☐	☑	MODERATE 10-50m [3]
☑	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY L	FLOOD PLAIN QUALITY R	
☐	☐	FOREST, SWAMP [3]
☑	☑	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 6.5 *Maximum 10*

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]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☑ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact ☐
Secondary Contact ☑
(circle one and comment on back)

Comments

Pool / Current 3 *Maximum 12*

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 0 *Maximum 8*

6] GRADIENT

DRAINAGE AREA (2.03 mi²)

(70 ft/mi)
- ☐ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☑ HIGH - VERY HIGH [10-6]

%POOL: 30 %GLIDE: 70 %RUN: _____ %RIFFLE: _____

Gradient 4 *Maximum 10*

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☑ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-		2nd
☐	HIGH	☐
☐	UP	☐
☐	NORMAL	☐
☐	LOW	☐
☐	DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER

35 meters

CLARITY

1st --sample pass--		2nd
☐	< 20 cm	☐
☐	20-<40 cm	☐
☐	40-70 cm	☐
☐	> 70 cm/ CTB	☐
☐	SECCHI DEPTH	☐

CANOPY

- ☑ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd pass _____ cm

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

perennial, located within electric transmission line easement

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] ISSUES

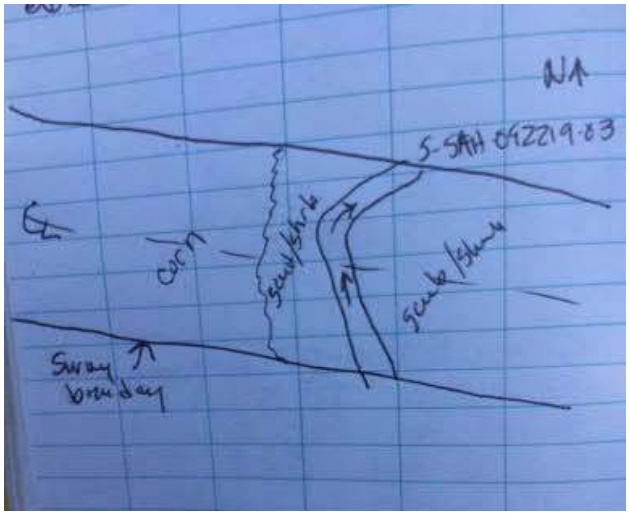
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth 10
- $\bar{x}$ bankfull width 12
- bankfull $\bar{x}$ depth 4
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Site Photos



upstream/ SW



downstream / NE



substrate

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 55.5

Stream & Location: AEP Hillsboro-Millbrook Park, S-KJD-100119-03; Stream HM-058 **RM:** **Date:** 10/01/2019

UNT to Middle Fork Ohio Brush Creek **Scorers Full Name & Affiliation:** Keith D'Angiolillo, Jacobs Engineering

River Code: 5090201 **STORET #:** **Lat./ Long.:** (NAD 83 - decimal °) 39.07818 / -83.44884 **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
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☑ ☐ COBBLE [8]		100	☐ ☐ MUCK [2]		
☐ ☑ GRAVEL [7]	100		☐ ☐ SILT [2]		
☐ ☐ SAND [6]			☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☑ 3 or less [0]

ORIGIN	SILT / EMBEDDEDNESS	QUALITY
☑ LIMESTONE [1]		☐ HEAVY [-2]
☐ TILLS [1]		☐ MODERATE [-1]
☐ WETLANDS [0]		☑ NORMAL [0]
☐ HARDPAN [0]		☐ FREE [1]
☐ SANDSTONE [0]		☐ EXTENSIVE [-2]
☐ RIP/RAP [0]		☐ MODERATE [-1]
☐ LACUSTURINE [0]		☐ NORMAL [0]
☐ SHALE [-1]		☑ NONE [1]
☐ COAL FINES [-2]		

Substrate 17 *Maximum 20*

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.

2 UNDERCUT BANKS [1]	2 POOLS > 70cm [2]	___ OXBOWS, BACKWATERS [1]	
3 OVERHANGING VEGETATION [1]	___ ROOTWADS [1]	___ AQUATIC MACROPHYTES [1]	
1 SHALLOWS (IN SLOW WATER) [1]	___ BOULDERS [1]	2 LOGS OR WOODY DEBRIS [1]	
___ ROOTMATS [1]			

AMOUNT

Check ONE (*Or 2 & average*)

- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☐ SPARSE 5-<25% [3]
- ☑ NEARLY ABSENT <5% [1]

Comments

Cover *Maximum 20* 7

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☑ MODERATE [2]
☑ LOW [2]	☑ FAIR [3]	☑ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel *Maximum 20* 10

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION (L R)	RIPARIAN WIDTH (L R)	FLOOD PLAIN QUALITY (L R)	(L R)
☐ ☐ NONE / LITTLE [3]	☐ ☐ WIDE > 50m [4]	☐ ☐ FOREST, SWAMP [3]	☐ ☐ CONSERVATION TILLAGE [1]
☑ ☑ MODERATE [2]	☑ ☐ MODERATE 10-50m [3]	☑ ☑ SHRUB OR OLD FIELD [2]	☐ ☐ URBAN OR INDUSTRIAL [0]
☐ ☐ HEAVY / SEVERE [1]	☐ ☑ NARROW 5-10m [2]	☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ ☐ MINING / CONSTRUCTION [0]
	☐ ☐ VERY NARROW < 5m [1]	☐ ☐ FENCED PASTURE [1]	
	☐ ☐ NONE [0]	☐ ☐ OPEN PASTURE, ROWCROP [0]	

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian *Maximum 10* 6.5

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* 6.00

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]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☑ NONE [2]
☑ BEST AREAS 5-10cm [1]	☑ MAXIMUM < 50cm [1]	☑ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

Riffle / Run *Maximum 8* 5

6] GRADIENT

(160 ft/mi)

DRAINAGE AREA (1.18 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☑ HIGH - VERY HIGH [10-6]

%POOL: 50 **%GLIDE:** **%RUN:** 25 **%RIFFLE:** 25

Gradient *Maximum 10* 4

A] 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

90 meters

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 pass _____ cm

2nd _____ cm

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☑ 10%-<30%
- ☐ <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Perennial stream at base of slope. Vegetated riparian area with box elder, black walnut, honey locust and sycamore trees. Pasture on western bank, but no outward signs of impacts to stream from livestock.

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] ISSUES

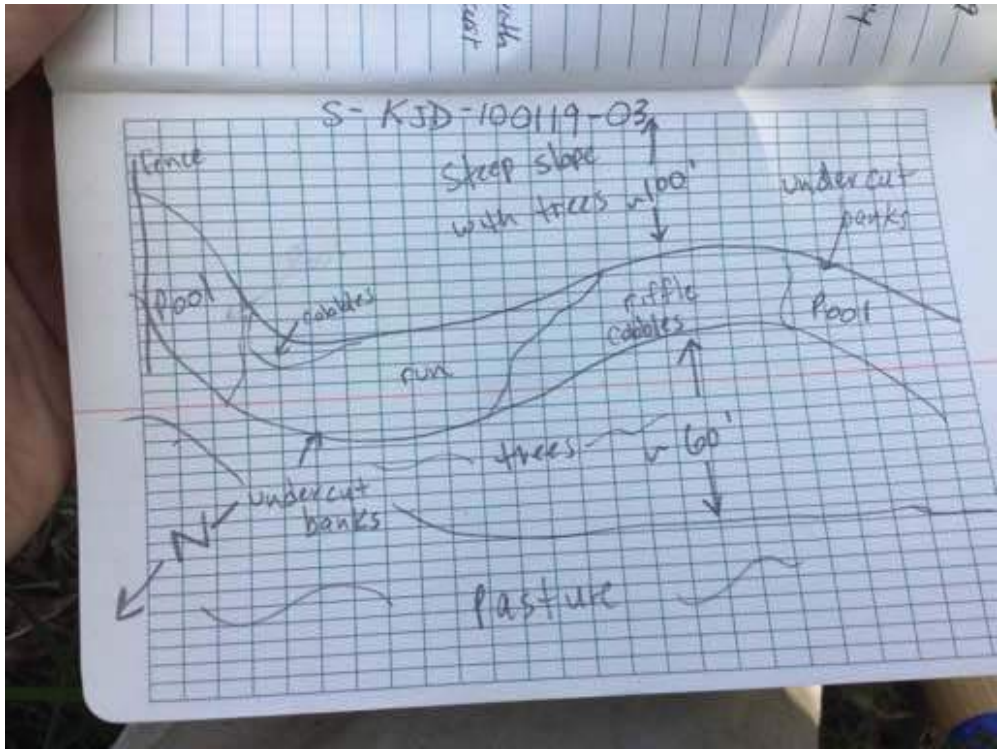
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width	18
$\bar{x}$ depth	1
max. depth	3
$\bar{x}$ bankfull width	20
bankfull $\bar{x}$ depth	3
W/D ratio	
bankfull max. depth	4
floodprone x^2 width	
entrench. ratio	

Legacy Tree:

Stream Drawing:



Natural perennial stream channel at bottom of slope. Slope on left bank border and contains trees. Right bank level and contains trees and pasture.

Site Photos

upstream / N
photo taken 01-15-2020



downstream / S
photo taken 01-15-2020



substrate
photo taken 01-15-2020



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 68

Stream & Location: AEP Hillsboro-Millbrook Park; S-MJA-100319-03; Stream HM-065 **RM:** _____ **Date:** 10/03/2019

UNT Baker Fork **Scorers Full Name & Affiliation:** Matt Abbott, Jacobs Engineering

River Code: 05090201 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 39.06679 / -83.41416 Office verified location ☑

1] SUBSTRATE

Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

	BEST TYPES	POOL	RIFFLE		OTHER TYPES	POOL	RIFFLE
☐	☐ BLDR /SLABS [10]	10	10	☐	☐ HARDPAN [4]		
☐	☐ BOULDER [9]	15	10	☐	☐ DETRITUS [3]		
☑	☐ COBBLE [8]	35	50	☐	☐ MUCK [2]		
☐	☑ GRAVEL [7]	10	20	☐	☐ SILT [2]	30	5
☐	☐ SAND [6]		5	☐	☐ ARTIFICIAL [0]		
☐	☐ BEDROCK [5]						

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☑ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☑ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

EMBEDDEDNESS

SILT
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ NONE [1]

Comments

Substrate 18 *Maximum 20*

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.

_____	UNDERCUT BANKS [1]	1	POOLS > 70cm [2]	_____	OXBOWS, BACKWATERS [1]
1	OVERHANGING VEGETATION [1]	1	ROOTWADS [1]	_____	AQUATIC MACROPHYTES [1]
_____	SHALLOWS (IN SLOW WATER) [1]	1	BOULDERS [1]	1	LOGS OR WOODY DEBRIS [1]
_____	ROOTMATS [1]				

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ 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* 11.0

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

L	R	EROSION
☑	☑	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

L	R	RIPARIAN WIDTH
☐	☐	WIDE > 50m [4]
☑	☑	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☐	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

L	R	FLOOD PLAIN QUALITY
☐	☐	FOREST, SWAMP [3]
☑	☑	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☑	☑	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian *Maximum 10* 7.5

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]
- ☐ VERY FAST [1]
- ☑ FAST [1]
- ☑ MODERATE [1]
- ☑ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact ☐
Secondary Contact ☑
(circle one and comment on back)

Comments

Riffles and flow velocity inferred; stream not flowing at time of visit due to extended absence of rain.

Pool / Current *Maximum 12* 8

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

Riffles and flow velocity inferred; stream not flowing at time of visit due to extended absence of rain.

Riffle / Run *Maximum 8* 4.5

6] GRADIENT

(77 ft/mi)

DRAINAGE AREA

(0.34 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☑ HIGH - VERY HIGH [10-6]

%POOL: 35 **%GLIDE:** 20 **%RUN:** 0 **%RIFFLE:** 45

Gradient *Maximum 10* 8.00

A] SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Intermittent stream flowing through transmission line easement.

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER

94 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

1st pass _____ cm

2nd _____ cm

CANOPY

- ☐ > 85%- OPEN
- ☑ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] 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 H20 / TILE / H20 TABLE

ACID / MINE / QUARRY / FLOW

NATURAL / WETLAND / STAGNANT

PARK / GOLF / LAWN / HOME

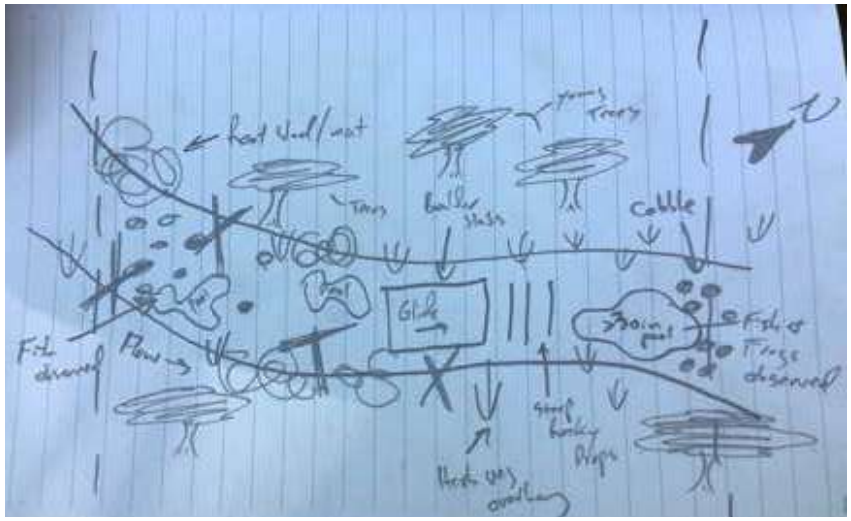
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width	12'
$\bar{x}$ depth	
max. depth	30"
$\bar{x}$ bankfull width	15'
bankfull $\bar{x}$ depth	
W/D ratio	
bankfull max. depth	
floodprone x^2 width	
entrench. ratio	

Legacy Tree:

Stream Drawing:



Site Photos



upstream / W



Downstream / E



substrate

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 57.5

Stream & Location: AEP Hillsboro-Millbrook Park, S-DCS-102219-03; Stream HM-135 **RM:** **Date:** 10/22/2019

UNT to Bear Creek **Scorers Full Name & Affiliation:** DC Stanley, Jacobs Engineering Group

River Code: 5060002 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 38.92748 / -83.09903 **Office verified location** ☑

1] SUBSTRATE

Check **ONLY Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]	10	5	☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☑ ☐ COBBLE [8]	20	25	☐ ☐ MUCK [2]		
☐ ☑ GRAVEL [7]	25	40	☐ ☐ SILT [2]	30	20
☐ ☐ SAND [6]	15	10	☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☑ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☑ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☐ HEAVY [-2]
- ☑ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ NONE [1]

Substrate 17 *Maximum 20*

Comments

turbidity increases downstream

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.

1 UNDERCUT BANKS [1]	1 POOLS > 70cm [2]	_ OXBOWS, BACKWATERS [1]	
1 OVERHANGING VEGETATION [1]	_ ROOTWADS [1]	1 AQUATIC MACROPHYTES [1]	
_ SHALLOWS (IN SLOW WATER) [1]	2 BOULDERS [1]	1 LOGS OR WOODY DEBRIS [1]	
1 ROOTMATS [1]			

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☑ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Cover 11 *Maximum 20*

Comments

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]

Channel 14 *Maximum 20*

Comments

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION

L	R	
☑	☑	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☑	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☑	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
☐	☐	FOREST, SWAMP [3]
☑	☑	SHRUB OR OLD FIELD [2]
☐	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian 7.5 *Maximum 10*

Comments

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)

Pool / Current 4.00 *Maximum 12*

Comments

it is likely that this stream is usually wetter than during the surveys - this season has been exceptionally dry

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]

Riffle / Run 0 *Maximum 8*

Comments

riffles may be present during wetter seasons - this fall has been exceptionally dry

6] GRADIENT

(150 ft/mi)

DRAINAGE AREA

(1.04 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☑ HIGH - VERY HIGH [10-6]

%POOL: 90 %GLIDE: _____

%RUN: 10 %RIFFLE: _____

Gradient 4 *Maximum 10*

A] 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

_____ meters

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	☐

pass 1st_____ cm

pass 2nd_____ cm

CANOPY

- ☑ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Water is turbid, discontinuous, and more turbid downstream than upstream.

Small fish, frogs, and dragonflies were observed

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] ISSUES

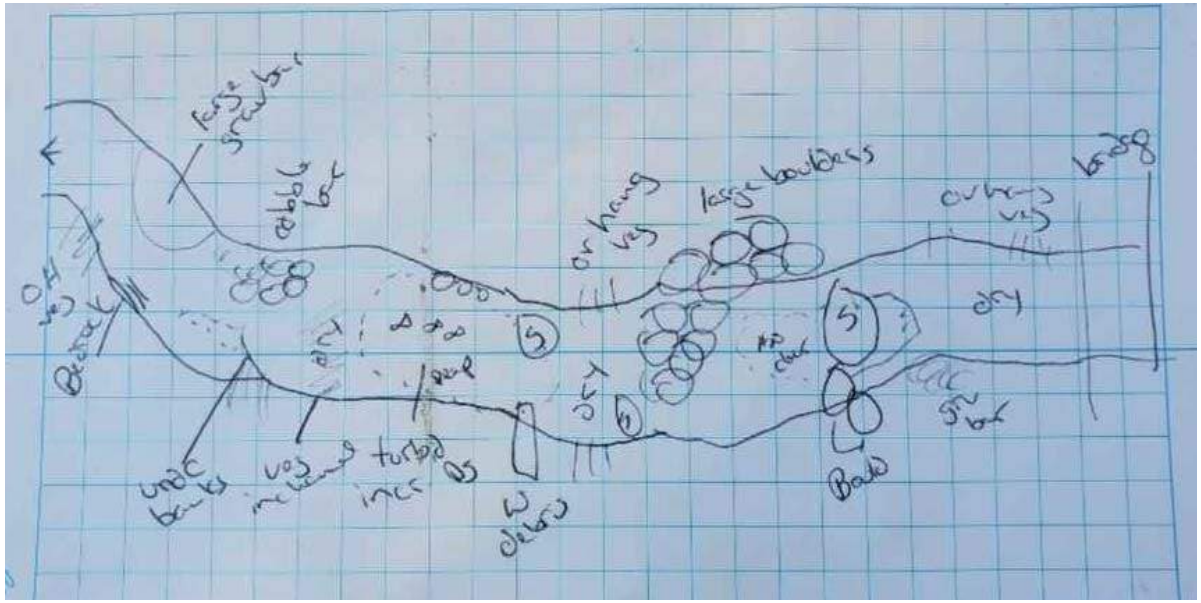
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width	10
$\bar{x}$ depth	3
max. depth	16
$\bar{x}$ bankfull width	10
bankfull $\bar{x}$ depth	2
W/D ratio	
bankfull max. depth	3
floodprone x^2 width	
entrench. ratio	

Legacy Tree:

Stream Drawing:


N
OH
dry
dry
Bedrock
Bedrock
Bedrock

Site Photos



upstream / WSW



downstream / NEN



substrate

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 55.75

Stream & Location: AEP Hillsboro-Millbrook Park; S-MJA-110119-02; Stream HM-150 **RM:** _____ **Date:** 11/01/2019

Big Run **Scorers Full Name & Affiliation:** Matt Abbott, Jacobs Engineering

River Code: 05060002 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 38.90282 / -83.06631 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
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]	25	25	☐ ☐ MUCK [2]		
☑ ☐ GRAVEL [7]	30	30	☐ ☐ SILT [2]	5	5
☐ ☐ SAND [6]	5	5	☐ ☐ ARTIFICIAL [0]		
☐ ☑ BEDROCK [5]	35	35			

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☑ 4 or more [2] ☐ 3 or less [0]

ORIGIN	SILT / EMBEDDEDNESS	QUALITY
☑ LIMESTONE [1]		☐ HEAVY [-2]
☐ TILLS [1]		☐ MODERATE [-1]
☐ WETLANDS [0]		☑ NORMAL [0]
☐ HARDPAN [0]		☐ FREE [1]
☐ SANDSTONE [0]		☐ EXTENSIVE [-2]
☐ RIP/RAP [0]		☐ MODERATE [-1]
☐ LACUSTURINE [0]		☑ NORMAL [0]
☐ SHALE [-1]		☐ NONE [1]
☐ COAL FINES [-2]		

Substrate 15 *Maximum 20*

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.

_____ UNDERCUT BANKS [1]	_____ POOLS > 70cm [2]	_____ OXBOWS, BACKWATERS [1]
2 OVERHANGING VEGETATION [1]	1 ROOTWADS [1]	_____ AQUATIC MACROPHYTES [1]
_____ SHALLOWS (IN SLOW WATER) [1]	_____ BOULDERS [1]	_____ LOGS OR WOODY DEBRIS [1]
_____ ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)

☐ EXTENSIVE >75% [11]
☐ MODERATE 25-75% [7]
☑ SPARSE 5-<25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

Cover 5 *Maximum 20*

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☑ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☑ MODERATE [3]	☐ GOOD [5]	☑ RECOVERED [4]	☑ MODERATE [2]
☐ LOW [2]	☑ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Flows under road via overpass.

Channel 12.5 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

EROSION (L R)	RIPARIAN WIDTH (L R)	FLOOD PLAIN QUALITY (L R)	(L R)
☑ ☑ NONE / LITTLE [3]	☑ ☑ WIDE > 50m [4]	☐ ☐ FOREST, SWAMP [3]	☐ ☐ CONSERVATION TILLAGE [1]
☑ ☐ MODERATE [2]	☐ ☐ MODERATE 10-50m [3]	☑ ☑ SHRUB OR OLD FIELD [2]	☐ ☐ URBAN OR INDUSTRIAL [0]
☐ ☐ HEAVY / SEVERE [1]	☐ ☐ NARROW 5-10m [2]	☑ ☑ RESIDENTIAL, PARK, NEW FIELD [1]	☐ ☐ MINING / CONSTRUCTION [0]
	☑ ☑ VERY NARROW < 5m [1]	☐ ☐ FENCED PASTURE [1]	
	☐ ☐ NONE [0]	☐ ☐ OPEN PASTURE, ROWCROP [0]	

Indicate predominant land use(s) past 100m riparian.

Comments

North of Big Run Rd: Residential on right bank, old field on left bank; South of Big Run Rd: old field on right bank, residential on left bank

Riparian 6.75 *Maximum 10*

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]
☐ VERY FAST [1]
☑ FAST [1]
☑ MODERATE [1]
☑ SLOW [1]
☐ INTERSTITIAL [-1]
☐ INTERMITTENT [-2]
☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact ☐
Secondary Contact ☑
(circle one and comment on back)

Comments

Pool / Current 4 *Maximum 12*

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]	☐ MAXIMUM > 50cm [2]	☑ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☑ BEST AREAS 5-10cm [1]	☑ MAXIMUM < 50cm [1]	☑ MOD. STABLE (e.g., Large Gravel) [1]	☑ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

Riffle / Run 4.5 *Maximum 8*

6] GRADIENT

(143 ft/mi)

DRAINAGE AREA

(0.66 mi²)

☐ VERY LOW - LOW [2-4]
☐ MODERATE [6-10]
☑ HIGH - VERY HIGH [10-6]

%POOL: 15 %GLIDE: 5
%RUN: 30 %RIFFLE: 50

Gradient 8 *Maximum 10*

A] SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Perennial stream flowing under Run Rd via overpass, through transmission line easement.

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER

172 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

1st pass _____ cm

2nd _____ cm

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☑ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] ISSUES

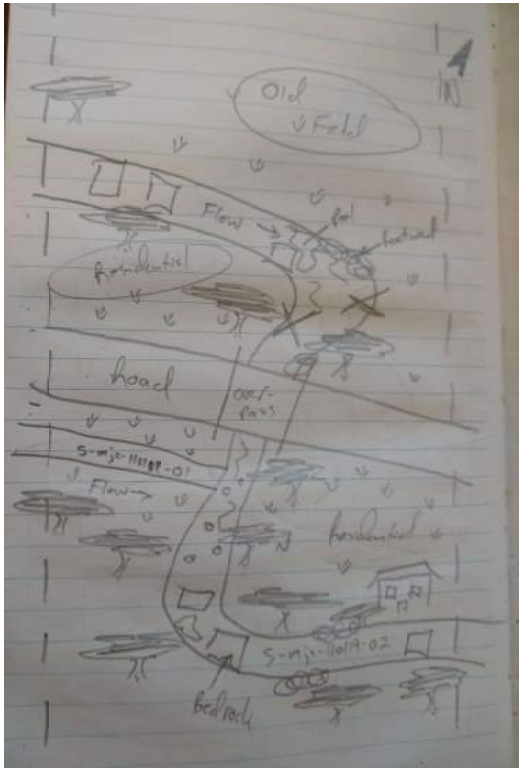
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width	5'
$\bar{x}$ depth	
max. depth	15"
$\bar{x}$ bankfull width	8'
bankfull $\bar{x}$ depth	
W/D ratio	
bankfull max. depth	
floodprone x^2 width	
entrench. ratio	

Legacy Tree:

Stream Drawing:



Site Photos



upstream / N

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 50.0

Stream & Location: AEP Hillsboro-Millbrook Park; S-MJA-102919-01; Stream HM-179 **RM:** _____ **Date:** 10/29/2019

UNT Scioto River **Scorers Full Name & Affiliation:** Matt Abbott, Jacobs Engineering

River Code: 05060002 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 38.84097 / -82.97440 **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
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]	5	5
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]	15	15	☐ ☐ MUCK [2]		
☑ ☐ GRAVEL [7]	50	50	☐ ☑ SILT [2]	25	25
☐ ☐ SAND [6]	5	5	☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☑ 3 or less [0]

ORIGIN	SILT	QUALITY
☑ LIMESTONE [1]		☐ HEAVY [-2]
☐ TILLS [1]		☑ MODERATE [-1]
☐ WETLANDS [0]		☑ NORMAL [0]
☐ HARDPAN [0]		☐ FREE [1]
☐ SANDSTONE [0]	EMBEDDEDNESS	☐ EXTENSIVE [-2]
☐ RIP/RAP [0]		☑ MODERATE [-1]
☐ LACUSTURINE [0]		☑ NORMAL [0]
☐ SHALE [-1]		☐ NONE [1]
☐ COAL FINES [-2]		

Substrate 9 *Maximum 20*

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.

1	UNDERCUT BANKS [1]	____	POOLS > 70cm [2]	____	OXBOWS, BACKWATERS [1]
1	OVERHANGING VEGETATION [1]	2	ROOTWADS [1]	____	AQUATIC MACROPHYTES [1]
____	SHALLOWS (IN SLOW WATER) [1]	____	BOULDERS [1]	____	LOGS OR WOODY DEBRIS [1]
1	ROOTMATS [1]				

AMOUNT Check ONE (*Or 2 & average*)
☐ EXTENSIVE >75% [11]
☑ MODERATE 25-75% [7]
☑ SPARSE 5-<25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

Cover *Maximum 20* 9

3] CHANNEL MORPHOLOGY
Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☑ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☑ MODERATE [2]
☐ LOW [2]	☑ FAIR [3]	☑ RECOVERING [3]	☑ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Stream flows under bridge overpass; recent dredging in small area south of road

Channel *Maximum 20* 11.5

4] BANK EROSION AND RIPARIAN ZONE
Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

L	R	EROSION
☐	☐	NONE / LITTLE [3]
☑	☑	MODERATE [2]
☑	☑	HEAVY / SEVERE [1]

L	R	RIPARIAN WIDTH
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☑	☑	NARROW 5-10m [2]
☐	☐	VERY NARROW < 5m [1]
☐	☐	NONE [0]

L	R	FLOOD PLAIN QUALITY
☐	☐	FOREST, SWAMP [3]
☑	☑	SHRUB OR OLD FIELD [2]
☑	☑	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Stream lined with shrub/scrub; mowed residiential property beyond narrow shrub corridor.

Riparian *Maximum 10* 5

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]
☐ VERY FAST [1]
☐ FAST [1]
☑ MODERATE [1]
☑ SLOW [1]
☐ INTERSTITIAL [-1]
☐ INTERMITTENT [-2]
☐ 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	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☑ BEST AREAS 5-10cm [1]	☑ MAXIMUM < 50cm [1]	☑ MOD. STABLE (e.g., Large Gravel) [1]	☑ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☑ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0]
			☐ EXTENSIVE [-1]

Comments

Riffle / Run *Maximum 8* 3.5

6] GRADIENT
(54.1 ft/mi)
☐ VERY LOW - LOW [2-4]
☐ MODERATE [6-10]
☑ HIGH - VERY HIGH [10-6]

DRAINAGE AREA
(1.61 mi²)

%POOL: 20 **%GLIDE:** 20
%RUN: 10 **%RIFFLE:** 50

Gradient *Maximum 10* 8

A] SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/ Is reach typical of steam?*, Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Perennial stream flowing under Houston Hollow Long Run Rd and through transmission line easement.

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER

187 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

1st pass _____ cm

2nd _____ cm

CANOPY

- ☐ > 85%- OPEN
- ☑ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

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

E] 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 H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width	4.5'
$\bar{x}$ depth	
max. depth	18"
$\bar{x}$ bankfull width	7'
bankfull $\bar{x}$ depth	
W/D ratio	
bankfull max. depth	
floodprone x^2 width	
entrench. ratio	

Legacy Tree:

Stream Drawing:



Site Photos



Upstream / SE



Downstream / NW



Substrate

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 36.5

Stream & Location: AEP Hillsboro-Millsbrook Park 138kV; S-RW-102819-03; Stream HM-213 **RM:** _____ **Date:** 10/28/2019

UNT Munn Run **Scorers Full Name & Affiliation:** Rei-Hua Wang / Jacobs Engineering

River Code: 5090103 **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 38.75857865 / -82.92689663 **Office verified location** ☑

1] SUBSTRATE

Check **ONLY Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ BLDR /SLABS [10]			☐ HARDPAN [4]		
☐ BOULDER [9]			☐ DETRITUS [3]		
☐ COBBLE [8]			☐ MUCK [2]		
☑ GRAVEL [7]			☑ SILT [2]		
☐ SAND [6]			☐ ARTIFICIAL [0]		
☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☑ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☑ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY

SILT
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ FREE [1]

EMBEDDEDNESS
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☑ NORMAL [0]
- ☐ NONE [1]

Substrate 9 *Maximum 20*

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.

0 UNDERCUT BANKS [1]	0 POOLS > 70cm [2]	0 OXBOWS, BACKWATERS [1]
0 OVERHANGING VEGETATION [1]	0 ROOTWADS [1]	0 AQUATIC MACROPHYTES [1]
0 SHALLOWS (IN SLOW WATER) [1]	0 BOULDERS [1]	0 LOGS OR WOODY DEBRIS [1]
0 ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☐ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

none present

Cover 0 *Maximum 20*

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 8 *Maximum 20*

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION

L	R	
☑	☑	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☑	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☐	☑	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
☑	☐	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☐	☑	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian 7.5 *Maximum 10*

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]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☑ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact ☐
Secondary Contact ☑
(circle one and comment on back)

Comments

Pool / Current 3 *Maximum 12*

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 5 *Maximum 8*

6] GRADIENT

(140 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☑ HIGH - VERY HIGH [10-6]

DRAINAGE AREA (1.17 mi²)

%POOL: 0 **%GLIDE:** 0 **%RUN:** 100 **%RIFFLE:** 0

Gradient 4 *Maximum 10*

A] SAMPLED REACH

Check ALL that apply

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Reinforced channelized stream, located adjacent to a park and school.

METHOD

- ☐ BOAT
- ☑ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER

70 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☑ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

CANOPY

- ☑ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

pass 1st _____ cm

pass 2nd _____ cm

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

✓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

E] ISSUES

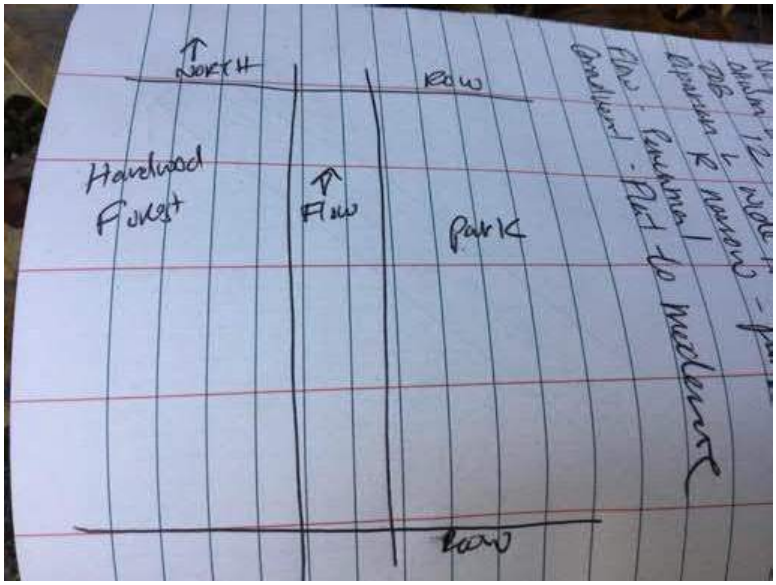
WWTP / CSO / NPDES / INDUSTRY
✓HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION - SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H20 / TILE / H20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
✓PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width	10
$\bar{x}$ depth	1
max. depth	2
$\bar{x}$ bankfull width	12
bankfull $\bar{x}$ depth	3
W/D ratio	
bankfull max. depth	3
floodprone x^2 width	
entrench. ratio	

Legacy Tree:

Stream Drawing:



Site Photos



upstream NE



downstream SW



Substrate

Appendix D
Primary Headwater Habitat Evaluation Index (HHEI) Stream Data Forms

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 38

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091719-01**

SITE NUMBER: HM-002 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.390

LENGTH OF STREAM REACH (ft): 109 | LAT: 39.16840 | LONG: -83.66594 | RIVER MILE:

DATE: 09/17/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream flows through infrequently maintained T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	60%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **13**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☑	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Large pool (>15 ft wide) with fish | MAXIMUM POOL DEPTH (inches): 20

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Right bank: old field, trees, & shrubs. Left bank: New field & shrubs

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Rocky Fork Distance from Evaluated Stream 1.19 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) Y Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

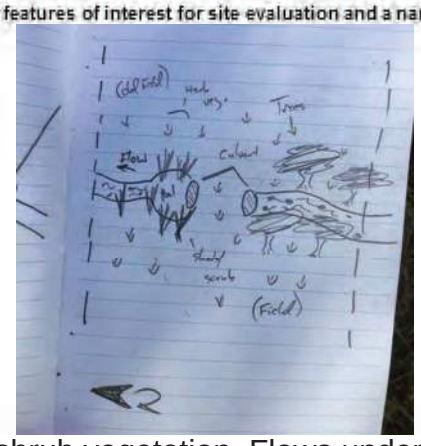
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream lined with old field/shrub vegetation. Flows under vegetated path via culvert.

Site Photos



South/upstream



North/downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 51

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091719-02**

SITE NUMBER: HM-003 | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.240

LENGTH OF STREAM REACH (ft): 158 | LAT: 39.16403 | LONG: -83.65590 | RIVER MILE:

DATE: 09/17/19 | SCORER: SAH | COMMENTS: Intermittent

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

within electric trans mission line ease ment

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	35%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	15%
☐ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **16**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☑	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Few pools | MAXIMUM POOL DEPTH (inches): 18

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Left bank: shrub/sapling. Right bank: old field.

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Rocky Fork Distance from Evaluated Stream .37 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Up W, down E, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) Y Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

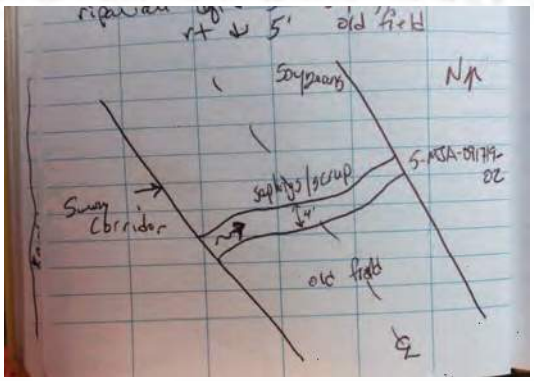
Comments Regarding Biology: _____

Small minnows 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



Stream lined with old field/shrub vegetation. Eroded banks.

Site Photos



Upstream / W



Downstream / E



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 52

SITE NAME/LOCATION: **AE P Hillsboro to Millbrook Park, S-MJA-091719-04**

SITE NUMBER: HM-005 | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.710

LENGTH OF STREAM REACH (ft): 89 | LAT: 39.16237 | LONG: -83.65226 | RIVER MILE:

DATE: 09/17/19 | SCORER: SAH | COMMENTS: Perennial, flows into stream S-MJA-091719-03

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	35%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	15%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	50%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points

Substrate Max = 40: **12**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 16

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 9

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: portion outside existing easement is forested

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: perennial, slow flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Rocky Fork Distance from Evaluated Stream 0.1 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Up SW, down NE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

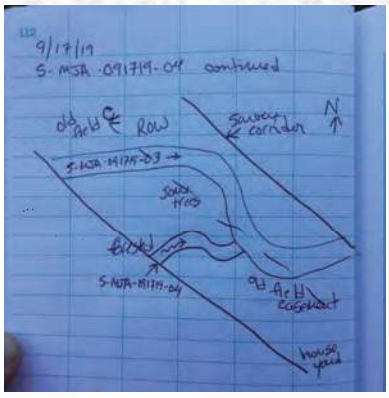
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream flows from southwest and into StreamHM-004 (S-MJA-091719-03).

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 40

SITE NAME/LOCATION: **AEP Hillsboro-Millbrook Park 138kV, S-MJA-091819-02a**

SITE NUMBER: HM-007a | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.081

LENGTH OF STREAM REACH (ft): 50 | LAT: 39.16179 | LONG: -83.65038 | RIVER MILE:

DATE: 09/18/19 | SCORER: SAH | COMMENTS: Intermittent, flows into stream S-MJA-091819-01

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

within electric transmission line easement, and influenced by proximity to roads

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	15%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☑ ☐	ARTIFICIAL [3 pts]	30%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **20**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Few pools | MAXIMUM POOL DEPTH (inches): 4

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: Steep, cut banks | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Scrub, adjacent to roads

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Rocky Fork Distance from Evaluated Stream 0.25 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Up NE, down NW, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

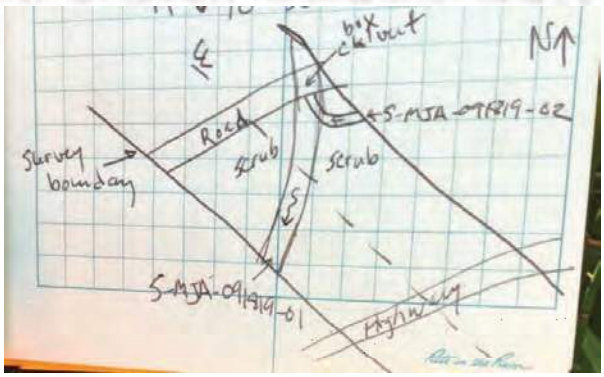
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream lined with shrub/scrub. Flows into StreamHM-006 (S-MJA-091819-01).

Site Photos



Upstream / NE



Downstream / NW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 56

SITE NAME/LOCATION: **AEP Hillsboro-Millbrook Park 138kV, S-MJA-091819-02b**

SITE NUMBER: HM-007b | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.081

LENGTH OF STREAM REACH (ft): 510 | LAT: 39.16019 | LONG: -83.64703 | RIVER MILE:

DATE: 09/18/19 | SCORER: SAH | COMMENTS: Intermittent, stream crosses survey area in 2nd location

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

within electric trans mission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	60%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	15%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **16**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Few pools | MAXIMUM POOL DEPTH (inches): 6

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☑ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Rocky Fork Distance from Evaluated Stream 0.25 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Up W, down NE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

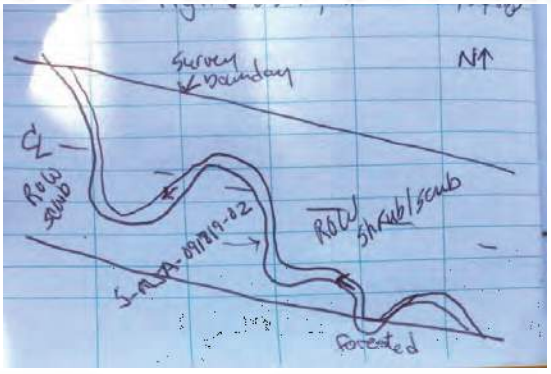
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Stream lined with shrub/scrub. Very sinuous. Some trash in channel.

Site Photos



Upstream / SE



Downstream / NW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 23

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091819-04**

SITE NUMBER: HM-008 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.054

LENGTH OF STREAM REACH (ft): 148 | LAT: 39.15956 | LONG: -83.64564 | RIVER MILE:

DATE: 09/18/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream flows through infrequently maintained T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	50%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **13**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

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):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.00

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Shrub/scrub on both banks.

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☑ >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: Rocky Fork Distance from Evaluated Stream 0.34 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

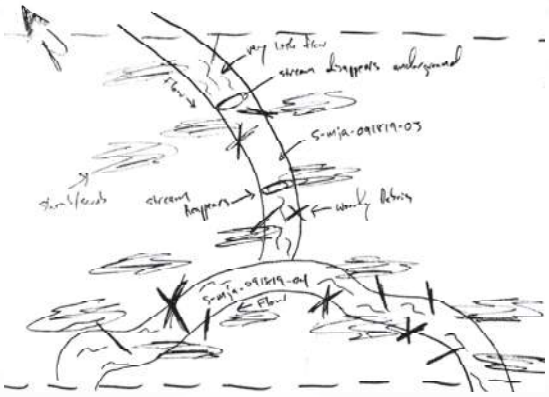
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream lined with shrub/scrub. Flows in and out of southwest edge of corridor.

Site Photos



Upstream / NE



Downstream / SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 17

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091819-03**

SITE NUMBER: HM-009 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 82 | LAT: 39.15965 | LONG: -83.64550 | RIVER MILE:

DATE: 09/18/19 | SCORER: MJA | COMMENTS: Ephemeral; stream disappears and reappears from underground

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

Infrequently maintained T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	70%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	15%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: **7**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Shrub/scrub on both banks

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Seep, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Rocky Fork Distance from Evaluated Stream 0.36 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

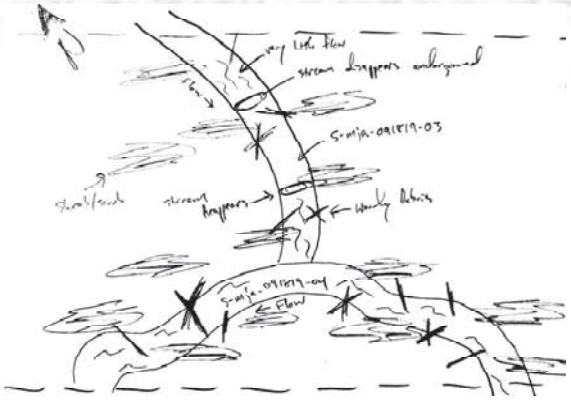
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream disappears and reappears from underground. Flows into Stream HM-008 (S-MJA-091819-04).

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 21

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091919-01**

SITE NUMBER: HM-010 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.010

LENGTH OF STREAM REACH (ft): 104 | LAT: 39.15645 | LONG: -83.63842 | RIVER MILE:

DATE: 09/19/19 | SCORER: SAH | COMMENTS: Intermittent, wetland W-MJA-091919-01 abuts

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	50%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points
Substrate Max = 40: **11**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: No true pools | MAXIMUM POOL DEPTH (inches): 2

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: PEM wetland abuts

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: South Fork Rocky Fork Distance from Evaluated Stream 0.74 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Up SW, down NE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

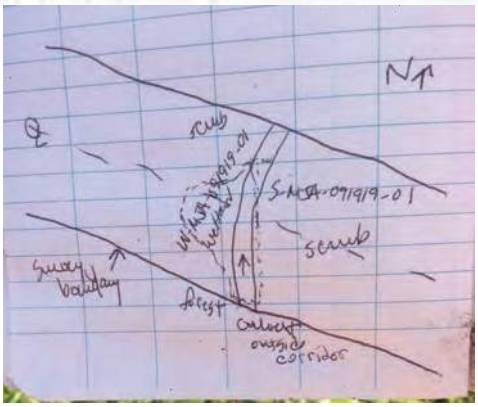
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Wetland W-MJA-091919-01 abuts

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 15

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091919-03**

SITE NUMBER: HM-012 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.062

LENGTH OF STREAM REACH (ft): 50 | LAT: 39.15304 | LONG: -83.63050 | RIVER MILE:

DATE: 09/19/19 | SCORER: MJA | COMMENTS: Intermittent

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

Channelized stream in active cattle pasture

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	50%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points

Substrate Max = 40: **5**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 2

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R	
☐	☐	Wide >10m	☐ ☐	Mature Forest, Wetland	☐ ☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐ ☐	Immature Forest, Shrub or Old Field	☐ ☐	Urban or Industrial
☑	☑	Narrow <5m	☐ ☐	Residential, Park, New Field	☑ ☑	Open Pasture, Row Crop
☐	☐	None	☐ ☐	Fenced Pasture	☐ ☐	Mining or Construction

COMMENTS: Originates in cattle-disturbed forest; no canopy near mouth

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Interpreted as intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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: South Fork Rocky Fork Distance from Evaluated Stream 0.18 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

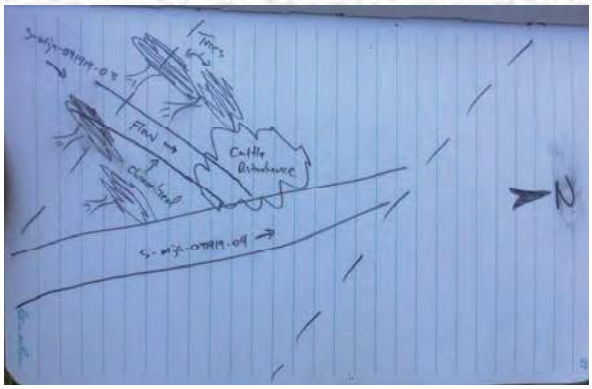
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Channelized stream in active cattle pasture.

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 18

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091919-04**

SITE NUMBER: HM-013 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 113 | LAT: 39.15308 | LONG: -83.63039 | RIVER MILE:

DATE: 09/19/19 | SCORER: SAH | COMMENTS: Intermittent, heavily impacted by cattle

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

within electric transmission line easement, passes through farm road culvert, and cattle impacted

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	90%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points
Substrate Max = 40: **8**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: No pools due to cattle impact | MAXIMUM POOL DEPTH (inches): 2

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Forested outside existing ROW

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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: South Fork Rocky Fork Distance from Evaluated Stream 0.17 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Market NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Up S, down N, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

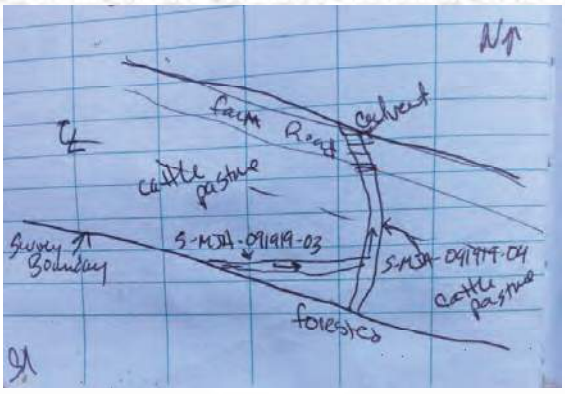
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Passes through cattle pasture and under road via culvert.

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 26

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-091919-05**

SITE NUMBER: HM-014 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.054

LENGTH OF STREAM REACH (ft): 72 | LAT: 39.15056 | LONG: -83.62406 | RIVER MILE:

DATE: 09/19/19 | SCORER: MJA | COMMENTS: Intermittent

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

Near roadside, adjacent to hayfield

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	60%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **6**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3.5

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☑ Residential, Park, New Field	☑	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Road near right bank; hayfield on left bank

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: South Fork Rocky Fork Distance from Evaluated Stream 0.9 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Liberty

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/02/19 Quantity: 0.49

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

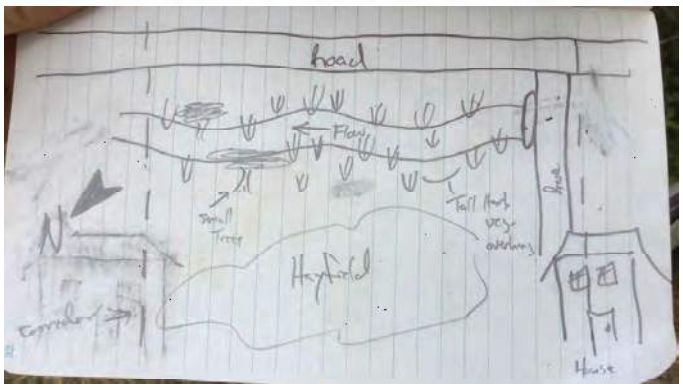
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Near roadside, adjacent to hayfield.

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 39

SITE NAME/LOCATION: **AEP Hillsboro to Millbrook Park, S-MJA-092019-01**

SITE NUMBER: HM-015 | RIVER BASIN: 5060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.025

LENGTH OF STREAM REACH (ft): 109 | LAT: 39.14997 | LONG: -83.62317 | RIVER MILE:

DATE: 09/20/19 | SCORER: SAH | COMMENTS: ephemeral

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	80%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☑	FINE DETRITUS [3 pts]	10%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **9**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Pooling from previous night rain

MAXIMUM POOL DEPTH (inches): 8

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: PEM wetland also, width narrows near road

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral, pooling from previous night rain.

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: South Fork Rocky Fork Distance from Evaluated Stream 0.89 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Liberty

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/20/19 Quantity: 0.02

Photo-documentation Notes: Up SE, down NW, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 60%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

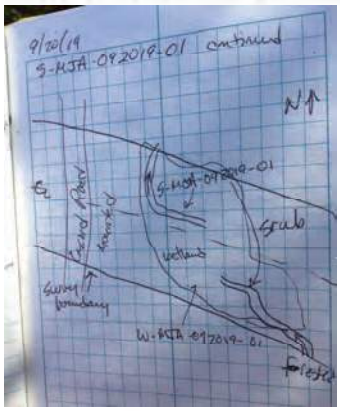
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream enters survey corridor, dissipates into wetland W-MJA-092019-01, reforms channel and exits survey corridor

Site Photos



Upstream / SE



Downstream / NW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 18

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park, S-MJA-092019-02

SITE NUMBER: 55 | RIVER BASIN: HM-017 | RIVER CODE: 5060003 | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): | LAT: 39.14848 | LONG: -83.61916 | RIVER MILE:

DATE: 09/20/19 | SCORER: SAH | COMMENTS: ephemeral, channel forms within survey corridor at erosional cut

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	90%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points

Substrate Max = 40: **8**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Few pools from previous night rain

MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: few pools from previous night rain

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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: South Fork Rocky Fork Distance from Evaluated Stream 0.65 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Liberty

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/20/19 Quantity: 0.02

Photo-documentation Notes: Up S, down NE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

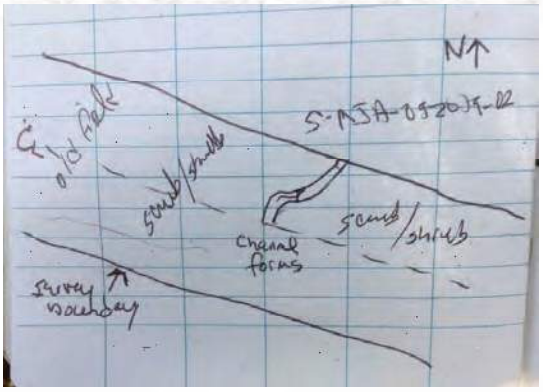
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Channel forms within survey corridor at erosional cut

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 17

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park, S-MJA-092019-03
SITE NUMBER: HM-018 RIVER BASIN: 5060003 RIVER CODE: DRAINAGE AREA (mi²): 0.050
LENGTH OF STREAM REACH (ft): 84 LAT: 39.14656 LONG: -83.61487 RIVER MILE:
DATE: 09/20/19 SCORER: SAH COMMENTS: ephemeral, Forms from drainage out of wetland W-MJA-092019-04

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
within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☑	SILT [3 pt]	100%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points
Substrate Max = 40: 7
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Few pools from previous night rain

MAXIMUM POOL DEPTH (inches): 2

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: South Fork Rocky Fork Distance from Evaluated Stream 0.86 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Liberty

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/20/19 Quantity: 0.02

Photo-documentation Notes: Up N, down S, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

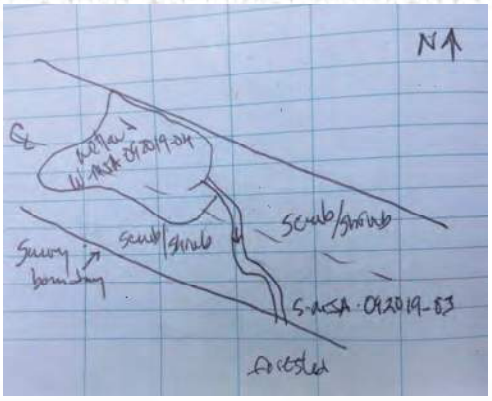
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Forms from drainage out of wetland W-MJA-092019-04

Site Photos



Upstream / N



Downstream / S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **28**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV
SITE NUMBER: HM-020 | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.422
LENGTH OF STREAM REACH (ft): 55 | LAT: 39.14429 | LONG: -83.60956 | RIVER MILE:
DATE: 09/22/19 | SCORER: SAH | COMMENTS: Intermittent

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
within electric transmission line easement, passes through culvert under Post Lane

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	80%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points
Substrate Max = 40: **8**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 4

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent, some pooling

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: South Fork Rocky Fork Distance from Evaluated Stream 0.48 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Liberty

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/21/19 Quantity: 0.08

Photo-documentation Notes: Up NE, down SW, sub

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

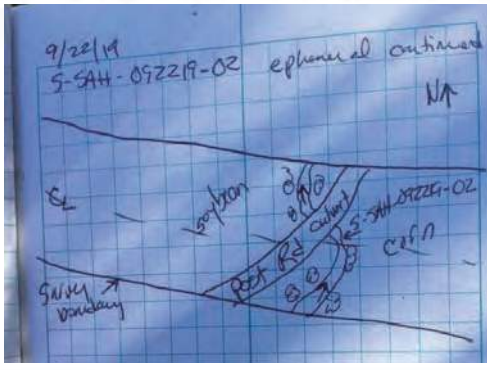
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within electric transmission line easement, passes through culvert under Post Lane

Site Photos



upstream / W



downstream / E



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **43**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV
SITE NUMBER: HM-022 | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01
LENGTH OF STREAM REACH (ft): 203 | LAT: 39.14205 | LONG: -83.60400 | RIVER MILE:
DATE: 09/22/19 | SCORER: SAH | COMMENTS: Intermittent

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
within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☑	BLDR SLABS [16 pts]	60%	☐	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 70%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 19 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **23**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Few Pools | MAXIMUM POOL DEPTH (inches): 4

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: South Fork Rocky Fork Distance from Evaluated Stream 0.18 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/21/19 Quantity: 0.08

Photo-documentation Notes: Up S, down N, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

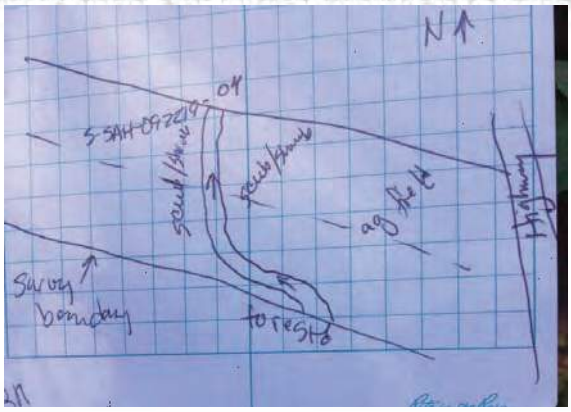
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Within electric transmission line easement.

Site Photos



upstream / NNW



downstream / SSE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 32

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-SAH-092219-05

SITE NUMBER: HM-023 | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.025

LENGTH OF STREAM REACH (ft): 130 | LAT: 39.14194 | LONG: -83.60375 | RIVER MILE:

DATE: 09/22/19 | SCORER: SAH | COMMENTS: ephemeral, forms within corridor from field drainage

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☑	BLDR SLABS [16 pts]	60%	☐	SILT [3 pt]	30%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 19 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points

Substrate Max = 40: **22**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: Some flow, but determined to be ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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: South Fork Rocky Fork Distance from Evaluated Stream 0.21 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: New Market

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/21/19 Quantity: 0.08

Photo-documentation Notes: Up E, down W, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

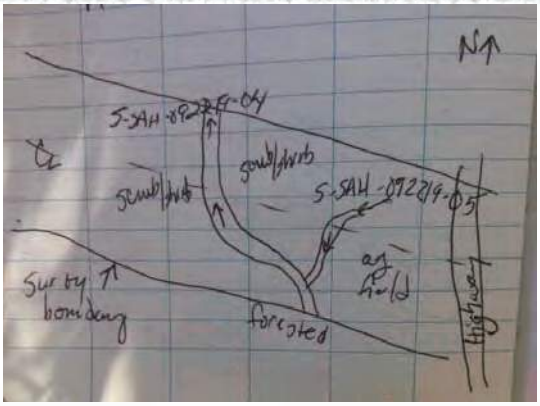
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within electric transmission line easement.

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 39

SITE NAME/LOCATION: AEP Hillsboro-Millbrook Park 138kV, S-SAH-092219-07

SITE NUMBER: HM-024 | RIVER BASIN: 05060003 | RIVER CODE: | DRAINAGE AREA (mi²): 0.042

LENGTH OF STREAM REACH (ft): 112 | LAT: 39.13827 | LONG: -83.59484 | RIVER MILE:

DATE: 09/22/19 | SCORER: SAH, RW | COMMENTS: Ephemeral channel

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

Located in T-Line ROW between two agricultural fields.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points

Substrate Max = 40: **24**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: South Fork Rocky Fork Distance from Evaluated Stream 0.99 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/21/19 Quantity: 0.08

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Located in T-Line ROW between two agricultural fields.

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 43

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092219-06
SITE NUMBER: HM-025 | RIVER BASIN: | RIVER CODE: 05060003 | DRAINAGE AREA (mi²): 0.042
LENGTH OF STREAM REACH (ft): 469 | LAT: 39.13846 | LONG: -83.59469 | RIVER MILE:
DATE: 09/22/19 | SCORER: SAH | COMMENTS: Intermittent

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
within electric transmission line easement, passes through farm road culvert

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 18 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **23**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☑ 5 cm - 10 cm [15 pts]
☐ < 5 cm [5pts]
☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Some pooling | MAXIMUM POOL DEPTH (inches): 2

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☐ Moist Channel, isolated pools, no flow (intermittent)
☑ Dry channel, no water (ephemeral)

COMMENTS: Intermittent, some pooling, no flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☑ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: South Fork Rocky Fork Distance from Evaluated Stream 0.97 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/21/19 Quantity: 0.08

Photo-documentation Notes: Up SW, down NE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

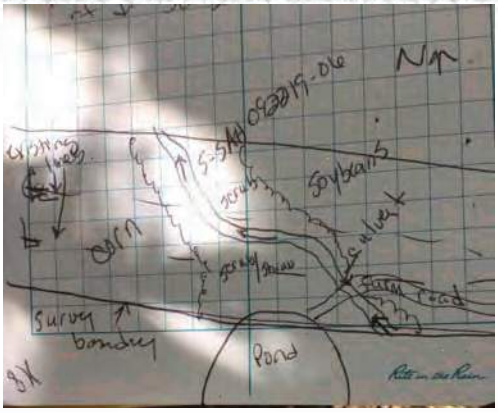
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within electric transmission line easement, passes through farm road culvert.

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 35

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092319-01

SITE NUMBER: HM-026 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.014

LENGTH OF STREAM REACH (ft): 119 | LAT: 39.13603 | LONG: -83.58955 | RIVER MILE:

DATE: 09/23/19 | SCORER: SAH | COMMENTS: Ephemeral

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

within electric transmission line easement and ag field, begins at culvert under Mt. Washington Rd

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	80%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points

Substrate Max = 40: **15**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☑ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral Stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Ohio Brush Creek Distance from Evaluated Stream 3.01 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NW, down SE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

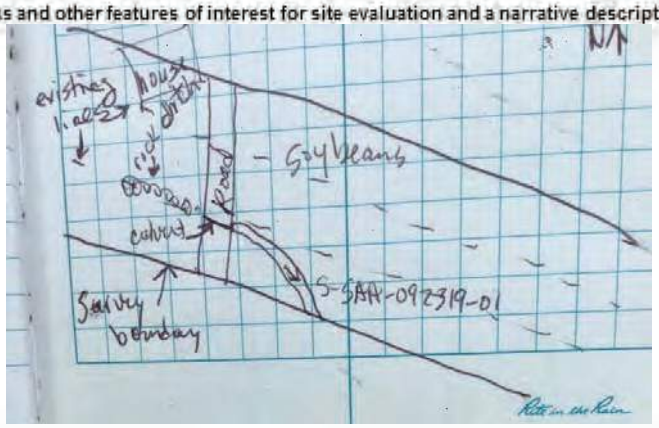
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Within electric transmission line easement and ag field, begins at culvert under Mt. Washington Rd.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **27**

SITE NAME/LOCATION: AEP Hillsbor-Millbrook Park 138kV S-SAH-092319-02

SITE NUMBER: HM-027 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.035

LENGTH OF STREAM REACH (ft): 250 | LAT: 39.13449 | LONG: -83.58537 | RIVER MILE:

DATE: 09/23/19 | SCORER: SAH, RW | COMMENTS: Ephemeral

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

Crosses T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☑	BLDR SLABS [16 pts]	80%	☐	SILT [3 pt]	15%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 80%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 19 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **22**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **0**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Ohio Brush Creek Distance from Evaluated Stream 3 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washintgon

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

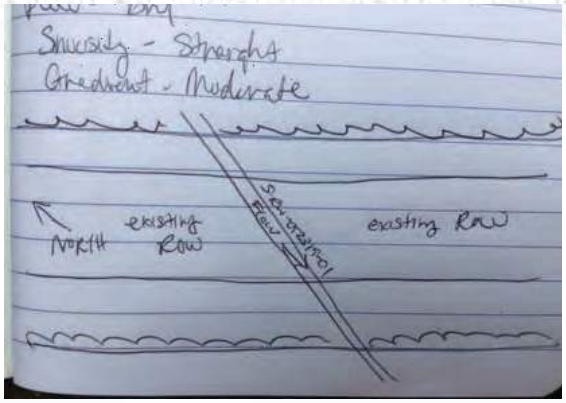
Comments Regarding Biology: _____

Low quality aquatic habitat

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



Ephemeral stream in valley flows to NHD mapped stream off ROW

Site Photos



South, upstream



North, downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 43

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-SAH-092319-03

SITE NUMBER: HM-028 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.180

LENGTH OF STREAM REACH (ft): 367 | LAT: 39.13317 | LONG: -83.58211 | RIVER MILE:

DATE: 09/23/19 | SCORER: SAH | COMMENTS: Intermittent

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

within electric transmission line easement, passes through driveway culvert

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	40%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	10%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	40%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **13**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☑ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 4

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Also pasture on right bank at downstream end past driveway

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Ohio Brush Creek Distance from Evaluated Stream 3 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up W, down E, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

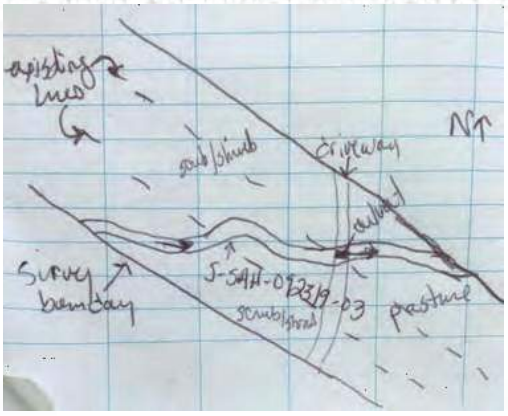
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Within electric transmission line easement, passes through driveway culvert

Site Photos



upstream / W



downstream / E



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 56

SITE NAME/LOCATION: AEP Hillsboro-Millbrook Park 138kV, S-SAH-092319-04

SITE NUMBER: HM-029 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.350

LENGTH OF STREAM REACH (ft): 450 | LAT: 39.13232 | LONG: -83.58039 | RIVER MILE:

DATE: 09/23/19 | SCORER: SAH, RW | COMMENTS: Perennial

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

Located in T-Line ROW, between two agricultural fields.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	35%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **16**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 24

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 7

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☐ Moderate 5-10m	☑	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: perennial

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Ohio Brush Creek Distance from Evaluated Stream 2.9 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 75%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) Y Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) Y Species observed (if known): _____

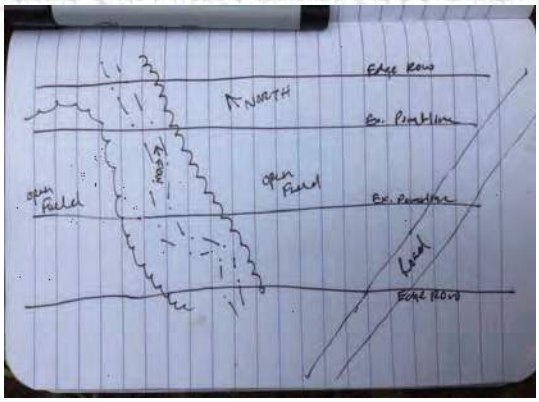
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Located in T-Line ROW, between two agricultural fields.

Site Photos



South, upstream



Northwest, downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 42

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092319-05
SITE NUMBER: HM-030 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.430
LENGTH OF STREAM REACH (ft): 294 | LAT: 39.13189 | LONG: -83.57924 | RIVER MILE:
DATE: 09/23/19 | SCORER: SAH | COMMENTS: Perennial

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
within electric transmission line easement, parallels W. Prospect Road, passes through 2 culverts

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	40%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 18 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 22 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 4

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Roadway easement and pasture

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Perennial

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 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: Ohio Brush Creek Distance from Evaluated Stream 2.8 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up E, down W, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

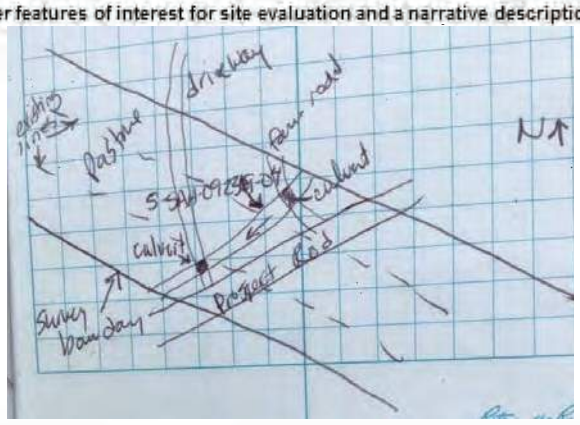
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within electric transmission line easement, parallels W Prospect Road, passes through 2 culverts

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **61**

SITE NAME/LOCATION: AEP Hillsboro-Millbrook Park 138kV S-SAH-092319-06

SITE NUMBER: HM-031 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.190

LENGTH OF STREAM REACH (ft): 250 | LAT: 39.12963 | LONG: -83.57388 | RIVER MILE:

DATE: 09/23/19 | SCORER: SAH, RW | COMMENTS: Intermittent

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

Crosses T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	25%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **16**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 8

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 6

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☑ 2.5	☐ >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: Ohio Brush Creek Distance from Evaluated Stream 2.8 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 75%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) Y Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

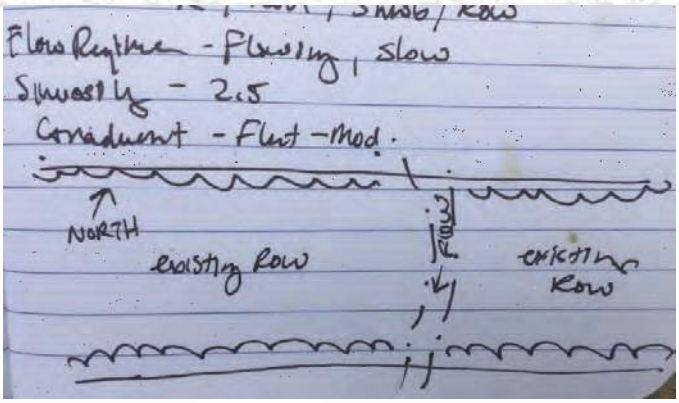
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Crosses T-Line ROW

Site Photos



East, upstream



West, downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **27**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092319-07

SITE NUMBER: HM-032 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 219 | LAT: 39.12812 | LONG: -83.57012 | RIVER MILE:

DATE: 09/23/19 | SCORER: SAH | COMMENTS: Intermittent, abutting wetland W-SAH-092319-01

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

Within electric transmission line easement, cattle impacted

1. SUBSTRATE (Estimate percent of every type 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
☐	☐ BLDR SLABS [16 pts]	0%	☑	☑ SILT [3 pt]	100%
☐	☐ BOULDER (>256 mm) [16 pts]	0%	☐	☐ LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	☐ BEDROCK [16 pts]	0%	☐	☐ FINE DETRITUS [3 pts]	0%
☐	☐ COBBLE (65-256 mm) [12 pts]	0%	☐	☐ CLAY or HARDPAN [0 pt]	0%
☐	☐ GRAVEL (2-64 mm) [9 pts]	0%	☐	☐ MUCK [0 pts]	0%
☐	☐ SAND (<2 mm) [6 pts]	0%	☐	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points

Substrate Max = 40: **7**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Pooling from cattle impact

MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Stream determined to be intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Ohio Brush Creek Distance from Evaluated Stream 2.8 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NE, down SW, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

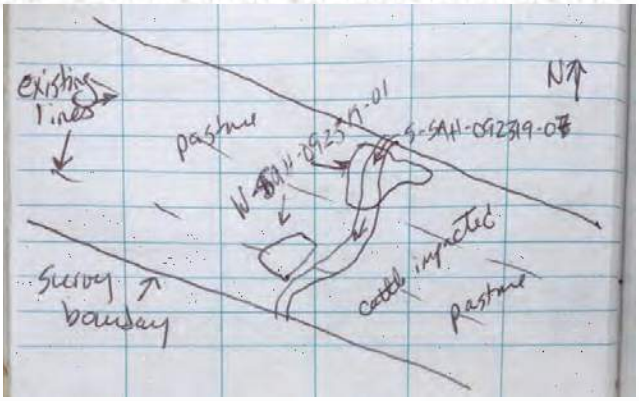
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Located in existing T-Line ROW and active cow pasture.

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **13**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092419-01

SITE NUMBER: HM-033 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.018

LENGTH OF STREAM REACH (ft): 181 | LAT: 39.12600 | LONG: -83.56486 | RIVER MILE:

DATE: 09/24/19 | SCORER: SAH | COMMENTS: Ephemeral, channel develops within corridor

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

within electric transmission line easement and soybean field

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☑	SILT [3 pt]	95%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points
Substrate Max = 40: **8**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☐	☐	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Ohio Brush Creek Distance from Evaluated Stream 2.2 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: up N, down S, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

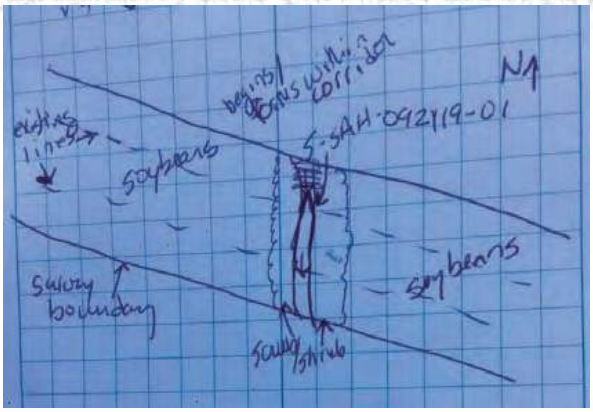
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within electric transmission line easement and soybean field.

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **22**

SITE NAME/LOCATION: AEP Hillsboro-Millbrook Park 138kV S-SAH-092419-02

SITE NUMBER: HM-034 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.029

LENGTH OF STREAM REACH (ft): 220 | LAT: 39.12538 | LONG: -83.56352 | RIVER MILE:

DATE: 09/24/19 | SCORER: SAH, RW | COMMENTS: Ephemeral

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

Agricultural field drainage

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	35%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **17**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Narrow shrub riparian buffer, surrounded by soybean fields and horse pasture.

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Ohio Brush Creek Distance from Evaluated Stream 2.2 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Hillsboro NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) N If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

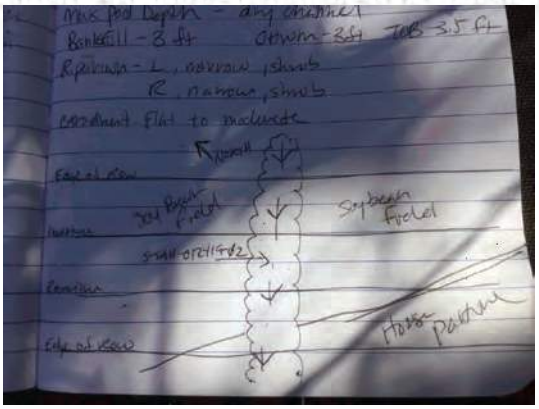
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Located in T-Line ROW, between agricultural fields.

Site Photos



Downstream, Southwest



Upstream, Northeast



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 57

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-SAH-092419-03

SITE NUMBER: HM-035 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.120

LENGTH OF STREAM REACH (ft): 288 | LAT: 39.12353 | LONG: -83.55908 | RIVER MILE:

DATE: 09/24/19 | SCORER: SAH | COMMENTS: Ephemeral

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

Within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☑	BLDR SLABS [16 pts]	70%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	10%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	15%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 95%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **32**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Ephemeral, few small pools | MAXIMUM POOL DEPTH (inches): 2

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 6

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Ohio Brush Creek Distance from Evaluated Stream 2.63 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NW, down SE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

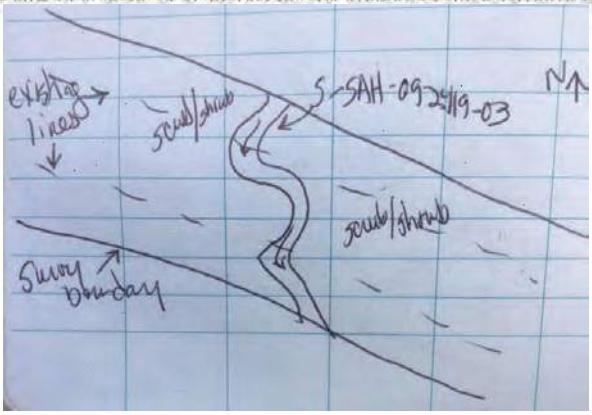
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Within electric transmission line easement.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 17

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092519-01

SITE NUMBER: HM-036 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 230 | LAT: 39.11514 | LONG: -83.54211 | RIVER MILE:

DATE: 09/25/19 | SCORER: SAH | COMMENTS: ephemeral, channel forms within survey corridor, dissipates into W-SAH-092519-01, then reforms

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☑	SILT [3 pt]	100%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40: **7**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Abutting PEM wetland

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Elm Run Distance from Evaluated Stream 0.94 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NW, down SE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

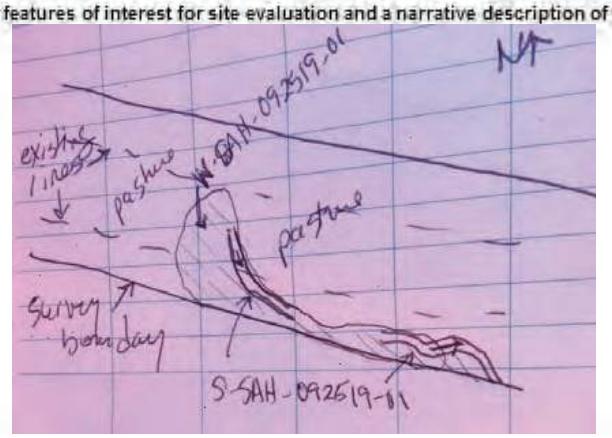
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Within electric transmission line easement

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 27

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092519-02

SITE NUMBER: HM-037 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 260 | LAT: 39.11502 | LONG: -83.54141 | RIVER MILE:

DATE: 09/25/19 | SCORER: SAH | COMMENTS: ephemeral, forms just outside survey corridor, flows through wetland W-SAH-092519-02

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐	☐ BLDR SLABS [16 pts]	0%	☑	☑ SILT [3 pt]	100%
☐	☐ BOULDER (>256 mm) [16 pts]	0%	☐	☐ LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	☐ BEDROCK [16 pts]	0%	☐	☐ FINE DETRITUS [3 pts]	0%
☐	☐ COBBLE (65-256 mm) [12 pts]	0%	☐	☐ CLAY or HARDPAN [0 pt]	0%
☐	☐ GRAVEL (2-64 mm) [9 pts]	0%	☐	☐ MUCK [0 pts]	0%
☐	☐ SAND (<2 mm) [6 pts]	0%	☐	☐ ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points

Substrate Max = 40: **7**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 2

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: PEM wetland also abuts

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Elm Run Distance from Evaluated Stream 0.94 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NW, down SE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

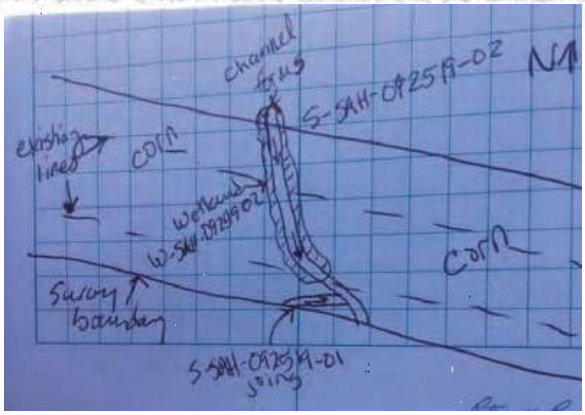
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Within electric transmission line easement

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **12**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092519-03

SITE NUMBER: HM-038 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 69 | LAT: 39.11473 | LONG: -83.54098 | RIVER MILE:

DATE: 09/25/19 | SCORER: SAH | COMMENTS: Ephemeral, forms within corridor at erosional cut

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☑	SILT [3 pt]	100%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points

Substrate Max = 40: **7**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Elm Run Distance from Evaluated Stream 0.95 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NE, down S, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

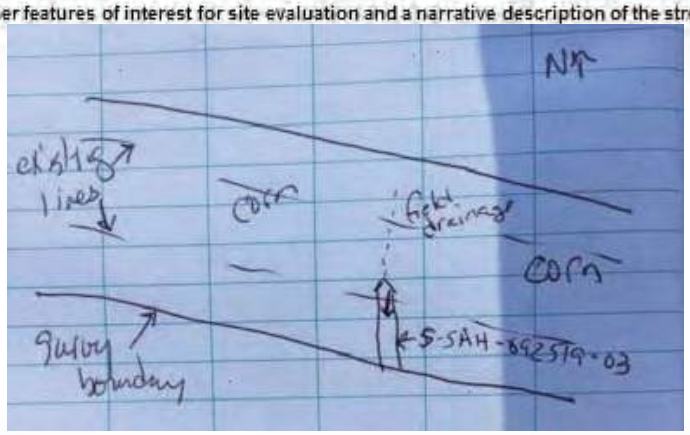
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Stream within electric transmission line easement.

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **23**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092519-04

SITE NUMBER: HM-039 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 37 | LAT: 39.11297 | LONG: -83.53684 | RIVER MILE:

DATE: 09/25/19 | SCORER: SAH | COMMENTS: ephemeral, channel forms at erosional cut at edge of easement

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

edge of electric transmission line easement and fenceline

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	90%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points

Substrate Max = 40: **8**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Immature forest

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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: Elm Run Distance from Evaluated Stream 0.66 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NE, down SW, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

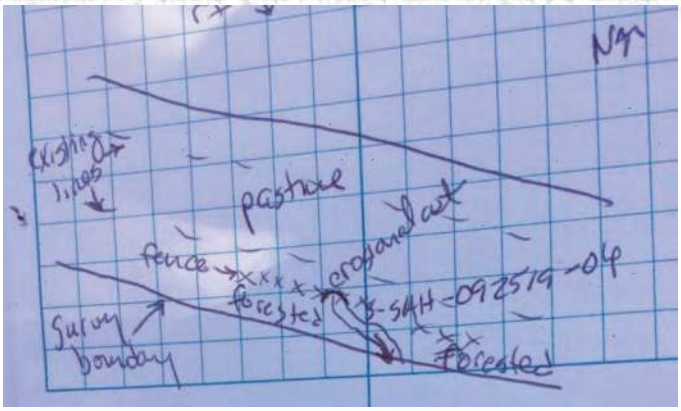
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Edge of electric transmission line easement and fenceline

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 12

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092519-05
SITE NUMBER: HM-040 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01
LENGTH OF STREAM REACH (ft): 100 | LAT: 39.11141 | LONG: -83.53233 | RIVER MILE:
DATE: 09/25/19 | SCORER: SAH | COMMENTS: ephemeral, forms within survey corridor at erosional cut

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
within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☑	SILT [3 pt]	100%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points
Substrate Max = 40: **7**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Left bank immature forest, right bank old field

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Elm Run Distance from Evaluated Stream 0.09 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NW, down E, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

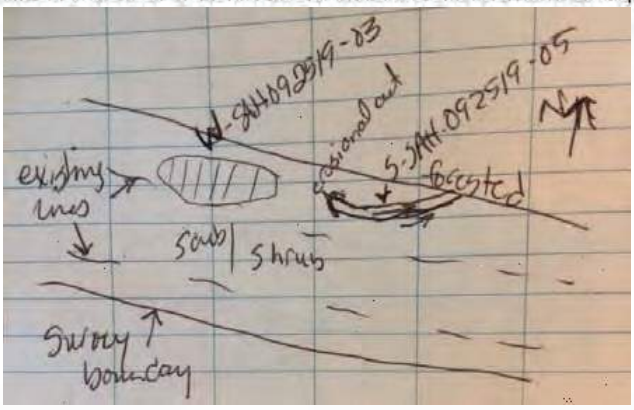
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Within electric transmission line easement.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 20

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092519-07

SITE NUMBER: HM-042 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.024

LENGTH OF STREAM REACH (ft): 360 | LAT: 39.10870 | LONG: -83.52741 | RIVER MILE:

DATE: 09/25/19 | SCORER: SAH, RW | COMMENTS: Ephemeral drainage located in active pasture

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

Active pasture

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	70%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**

(B) TOTAL NUMBER OF SUBSTRATE TYPES: **2**

HHEI Metric Points

Substrate Max = 40: **5**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **4**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☑	☑ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Elm Run Distance from Evaluated Stream 0.06 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Washington

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Located in existing T-Line ROW within an active cow pasture.

Site Photos



Southeast, upstream



Northwest, downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 53

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092419-04

SITE NUMBER: HM-043 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.110

LENGTH OF STREAM REACH (ft): 244 | LAT: 39.10532 | LONG: -83.52010 | RIVER MILE:

DATE: 09/24/19 | SCORER: SAH | COMMENTS: Intermittent

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

within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 18 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **23**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 6

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Elm Run Distance from Evaluated Stream 0.64 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Jackson

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NE, down SW, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) Y Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

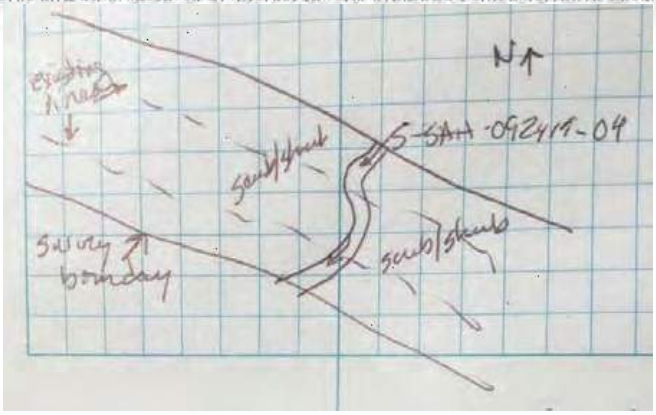
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within electric transmission line easement.

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 13

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092419-05
SITE NUMBER: HM-044 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01
LENGTH OF STREAM REACH (ft): 446 | LAT: 39.10225 | LONG: -83.51329 | RIVER MILE:
DATE: 09/24/19 | SCORER: SAH | COMMENTS: ephemeral, channel is inconsistent, small abutting wetland W-SAH-092419-02

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
within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	80%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points
Substrate Max = 40: **8**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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: Elm Run Distance from Evaluated Stream 0.96 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Jackson

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up NW, down SE, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

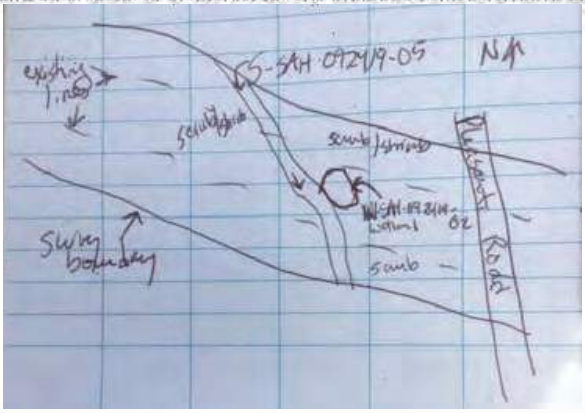
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Within electric transmission line easement.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 22

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-SAH-092419-06

SITE NUMBER: HM-045 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 70 | LAT: 39.10164 | LONG: -83.51255 | RIVER MILE:

DATE: 09/24/19 | SCORER: SAH | COMMENTS: Ephemeral, begins within corridor, eroded cut

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

Within electric transmission line easement

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	90%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points

Substrate Max = 40: **17**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral Stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Elm Run Distance from Evaluated Stream 0.96 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Jackson

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: Up N, down S, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

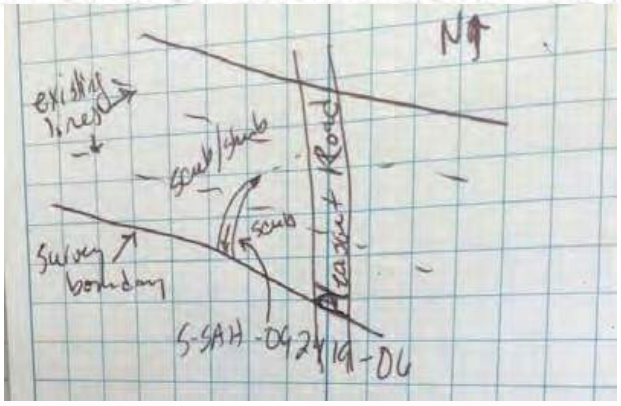
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Within electric transmission line easement.

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **22**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-MJA-093019-02

SITE NUMBER: HM-046 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 90 | LAT: 39.09795 | LONG: -83.50471 | RIVER MILE:

DATE: 09/30/19 | SCORER: MJA, KJD | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	35%	☐ ☑	CLAY or HARDPAN [0 pt]	30%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 55%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **17**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS: Appears to be headwater to larger downhill stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Elk Run Distance from Evaluated Stream 0.61 mile

☐ 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: Belfast NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Jackson

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream downstream substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

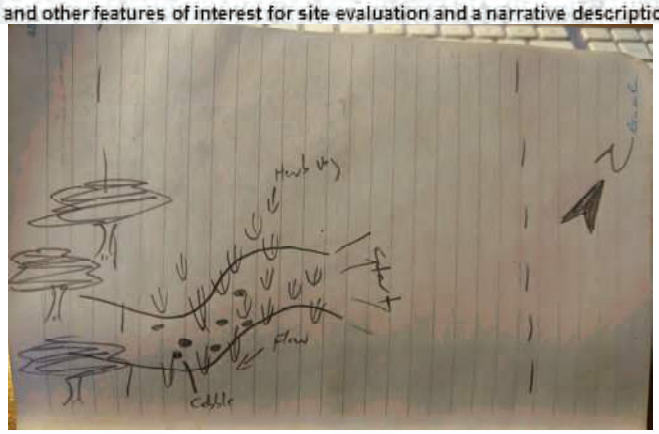
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Channel begins within ROW. Appears to be headwater to larger downhill stream.

Site Photos



Upstream / NE



Downstream / SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **12**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-MJA-100119-01
SITE NUMBER: HM-048 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.038
LENGTH OF STREAM REACH (ft): 244 | LAT: 39.08914 | LONG: -83.48169 | RIVER MILE:
DATE: 10/01/19 | SCORER: MJA | COMMENTS: Ephemeral

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
Stream within semi-maintained T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☑ ☐	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (B)

HHEI Metric Points
Substrate Max = 40: **7**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐ ☐ Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐ ☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐ ☐ Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐ ☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 1.53 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Jackson

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

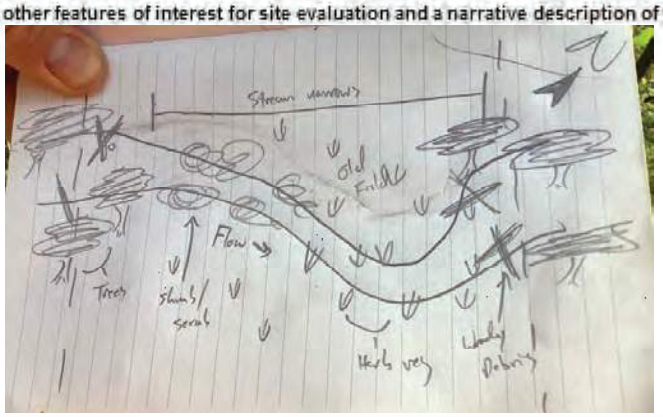
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Stream appears to narrow as it flows through ROW. Widens again beyond.

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **49**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV S-MJA-100119-02

SITE NUMBER: HM-049 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.014

LENGTH OF STREAM REACH (ft): 208 | LAT: 39.08815 | LONG: -83.47826 | RIVER MILE:

DATE: 10/01/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream within infrequently maintained T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☑	BLDR SLABS [16 pts]	20%	☐	SILT [3 pt]	10%
☐	BOULDER (>256 mm) [16 pts]	5%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	10%	☐	CLAY or HARDPAN [0 pt]	15%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	35%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 22 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points

Substrate Max = 40: **29**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Isolated pools | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☑ 2.5	☐ >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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 1.43 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Marshall

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

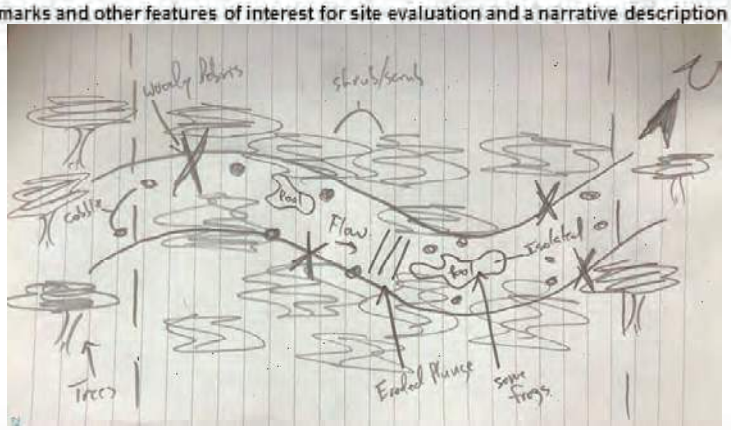
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Highly overgrown with shrub/scrub. Some steep plunges along channel.

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **18**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100119-03

SITE NUMBER: HM-050 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 130 | LAT: 39.08651 | LONG: -83.47282 | RIVER MILE:

DATE: 10/01/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	10%	☐ ☑	SILT [3 pt]	25%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☑ ☐	CLAY or HARDPAN [0 pt]	45%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **8**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Isolated

MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 1.03 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Marshall

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Downstream, upstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 55%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

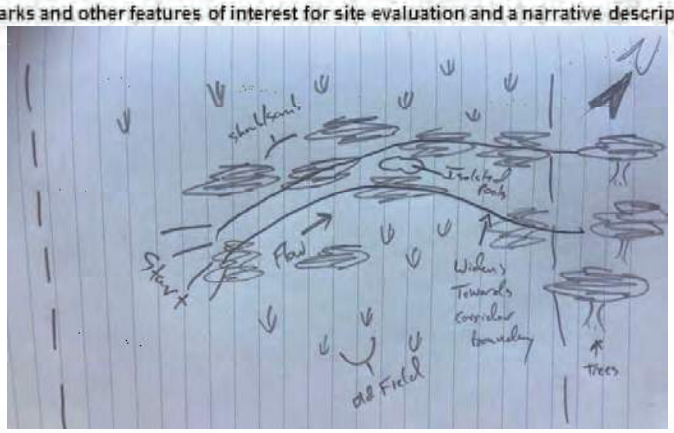
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Channel begins within corridor. Widens dramatically towards boundary.

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 43

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100119-05

SITE NUMBER: HM-051 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.010

LENGTH OF STREAM REACH (ft): 261 | LAT: 39.08610 | LONG: -83.47106 | RIVER MILE:

DATE: 10/01/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream in infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☑	BEDROCK [16 pts]	30%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	35%	☐ ☐	CLAY or HARDPAN [0 pt]	20%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 65%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **33**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 0.85 mile

☐ 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: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 65%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

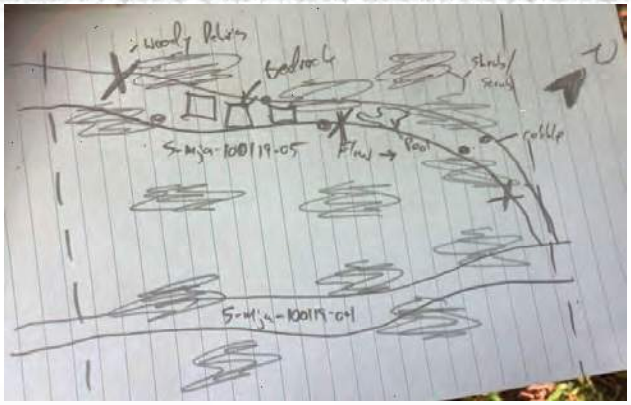
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Stream flows into Stream HM-052 (S-MJA-100119-04) just west of NE corridor boundary.

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 28

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100119-04

SITE NUMBER: HM-052 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.040

LENGTH OF STREAM REACH (ft): 217 | LAT: 39.08600 | LONG: -83.47087 | RIVER MILE:

DATE: 10/01/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream in infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	10%	☐☐	SILT [3 pt]	15%
☐☐	BOULDER (>256 mm) [16 pts]	5%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	35%	☐☑	CLAY or HARDPAN [0 pt]	25%
☐☐	GRAVEL (2-64 mm) [9 pts]	0%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **18**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Isolated | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 0.85 mile

☐ 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: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 55%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

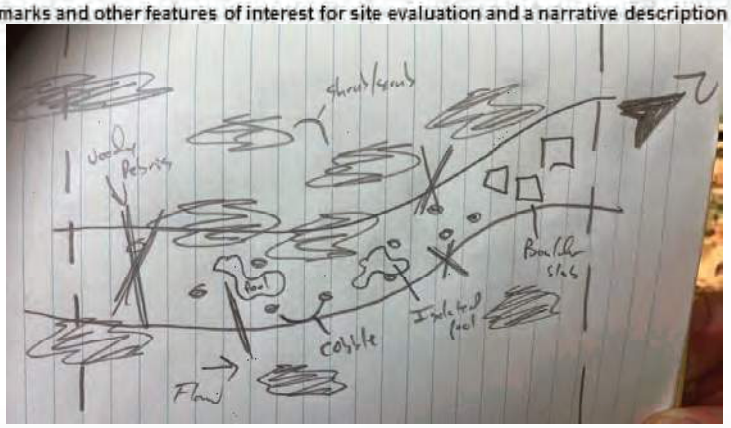
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Flows through T-line ROW, where it is very overgrown with shrub/scrub.

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 13

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100119-06
SITE NUMBER: HM-053 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.007
LENGTH OF STREAM REACH (ft): 36 | LAT: 39.08565 | LONG: -83.46931 | RIVER MILE:
DATE: 10/01/19 | SCORER: MJA | COMMENTS: Ephemeral

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
Stream within infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☑ ☐	CLAY or HARDPAN [0 pt]	60%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5% (A)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3
(B) TOTAL NUMBER OF SUBSTRATE TYPES: 5

HHEI Metric Points
Substrate Max = 40: **8**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 0.83 mile

☐ 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: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 35%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

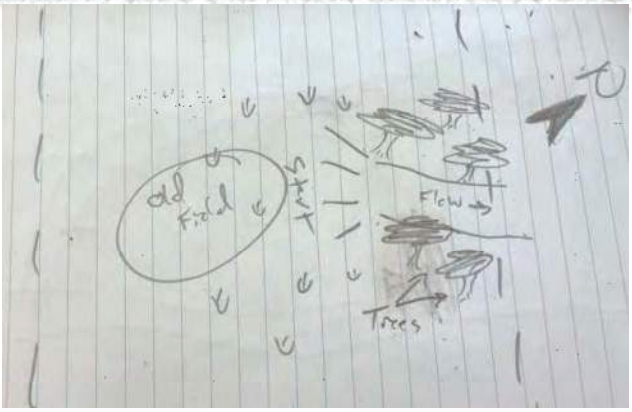
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Channel begins just SW of NE corridor boundary. Develops dramatically in woods.

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 36

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100219-01

SITE NUMBER: HM-054 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.019

LENGTH OF STREAM REACH (ft): 401 | LAT: 39.08480 | LONG: -83.46644 | RIVER MILE:

DATE: 10/02/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream in infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **26**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 0.39 mile

☐ 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: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

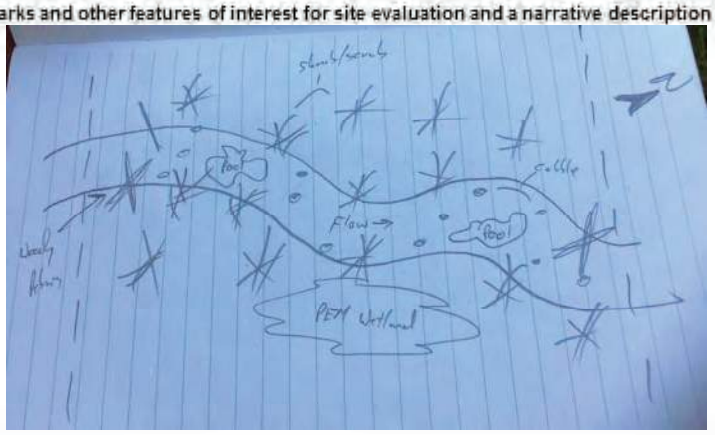
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Flows along toe of large slope. Well developed channel.

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **26**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100119-07

SITE NUMBER: HM-055 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.060

LENGTH OF STREAM REACH (ft): 467 | LAT: 39.08324 | LONG: -83.46235 | RIVER MILE:

DATE: 10/01/19 | SCORER: MJA | COMMENTS: Intermittent

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

Active cow pasture

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☑	SILT [3 pt]	50%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	0%	☑☐	CLAY or HARDPAN [0 pt]	40%
☐☐	GRAVEL (2-64 mm) [9 pts]	10%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	0%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **6**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3.5

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 0.15 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

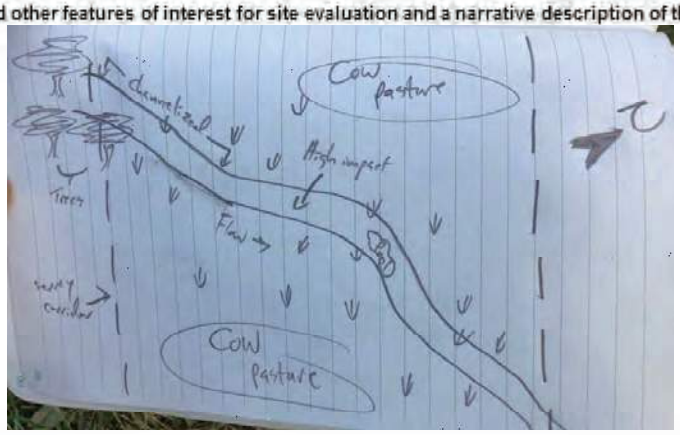
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Flow through active cow pasture. Highly disturbed.

Site Photos



upstream / W



downstream / E



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 35

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park 138 kV, S-KJD-100119-04

SITE NUMBER: HM-057 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.091

LENGTH OF STREAM REACH (ft): 304 | LAT: 39.08038 | LONG: -83.45581 | RIVER MILE:

DATE: 10/01/19 | SCORER: KJD | COMMENTS: Intermittent

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

Ditch

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	90%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points

Substrate Max = 40: **5**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☑	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 0.02 mile

☐ 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: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

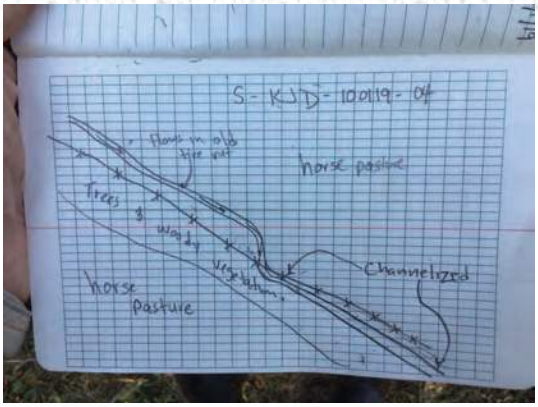
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Farm ditch between horse pastures. Woody riparian on right bank. Northernmost portion flows in old tire ruts.

Site Photos



upstream / S
photo taken 01-15-2020



downstream / N
photo taken 01-15-2020



substrate
photo taken 01-15-2020

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **6**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-KJD-100119-02
SITE NUMBER: HM-059 RIVER BASIN: 05090201 RIVER CODE: DRAINAGE AREA (mi²): 0.035
LENGTH OF STREAM REACH (ft): 42 LAT: 39.07429 LONG: -83.43755 RIVER MILE:
DATE: 10/01/19 SCORER: JRM COMMENTS: Ephemeral

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
Stream collects road runoff and flows between two corn fields

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☑	CLAY or HARDPAN [0 pt]	100%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points
Substrate Max = 40: 1
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 1.01 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: BRUSH CREEK

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

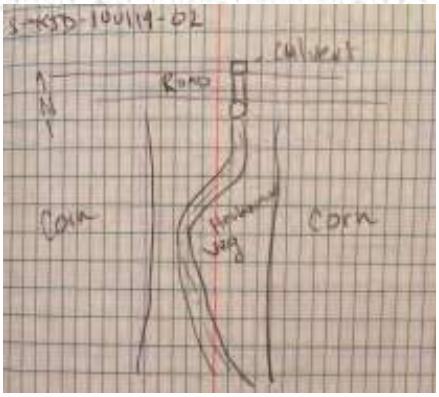
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Drainage way between cornfields that collects road runoff and directs it into field.

Site Photos



upstream / N
photo taken 01-15-2020



downstream / S
photo taken 01-15-2020



substrate
photo taken 01-15-2020

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 6

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-KJD-100119-01
SITE NUMBER: HM-060 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.035
LENGTH OF STREAM REACH (ft): 57 | LAT: 39.07338 | LONG: -83.43150 | RIVER MILE:
DATE: 10/01/19 | SCORER: KJD | COMMENTS: Ephemeral ditch between corn crops

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
Ditch between corn fields receiving road runoff

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☑	CLAY or HARDPAN [0 pt]	100%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0

TOTAL NUMBER OF SUBSTRATE TYPES: 1 (B)

HHEI Metric Points
Substrate Max = 40: **1**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☑	☑ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 1.05 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: US, DS, sub

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Ephemeral ditch between corn fields receiving storm water drain from road

Site Photos



upstream / NE
photo taken 01-15-2020



downstream / SW
photo taken 01-15-2020



substrate
photo taken 01-15-2020

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 21

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-KJD-100219-01
SITE NUMBER: HM-061 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.039
LENGTH OF STREAM REACH (ft): 167 | LAT: 39.07118 | LONG: -83.42775 | RIVER MILE:
DATE: 10/02/19 | SCORER: KJD | COMMENTS: Ephemeral, shows signs of flashy erosion

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
Erosional washout

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	0%	☑☑	CLAY or HARDPAN [0 pt]	100%
☐☐	GRAVEL (2-64 mm) [9 pts]	0%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	0%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0 | TOTAL NUMBER OF SUBSTRATE TYPES: 1 (B)

HHEI Metric Points
Substrate Max = 40: **1**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ 5 cm - 10 cm [15 pts]
☐ < 5 cm [5pts]
☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: No pool | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: Banks show washout erosion | AVERAGE BANKFULL WIDTH (feet): 5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☑ Open Pasture, Row Crop
☑	☑ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☐ Moist Channel, isolated pools, no flow (intermittent)
☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Middle Fork Ohio Brush Creek Distance from Evaluated Stream 1.17 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

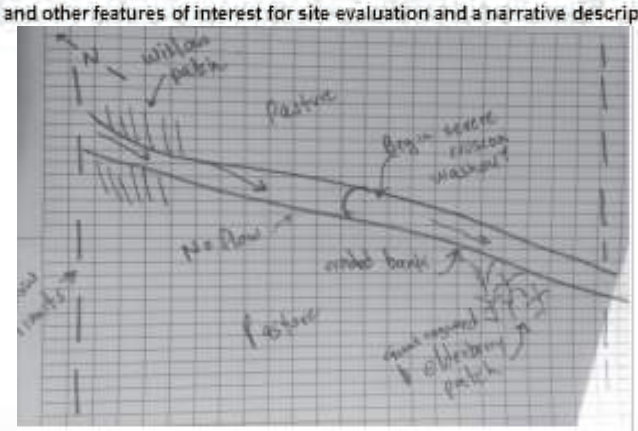
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Erosional feature in pasture. Appears to only drain storm flow. Washout areas throughout

Site Photos

upstream / NE
photo taken 01-15-2020



downstream / SW
photo taken 01-15-2020



substrate
photo taken 01-15-2020



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 27

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100219-02

SITE NUMBER: HM-062 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.035

LENGTH OF STREAM REACH (ft): 128 | LAT: 39.06938 | LONG: -83.42142 | RIVER MILE:

DATE: 10/02/19 | SCORER: MJA | COMMENTS: Intermittent

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

Flows into and out of man-made pond, within active cow pasture

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☑	SILT [3 pt]	100%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points

Substrate Max = 40: **7**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 2.5

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: stream interpretted as intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Baker Fork Distance from Evaluated Stream 1.36 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

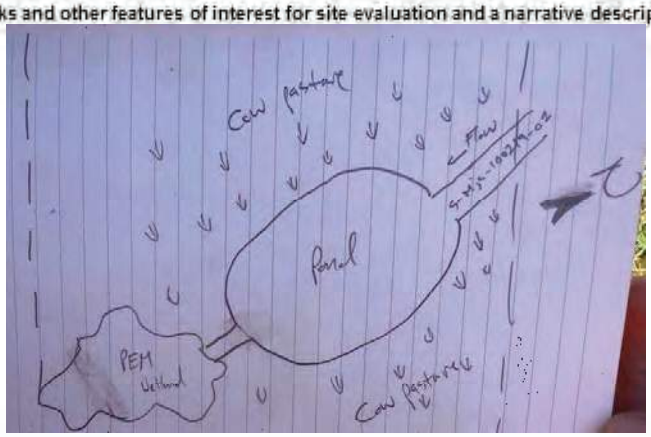
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Flows into and out of man-made pond, within active cow pasture. Channel dissipates in PEM wetland.

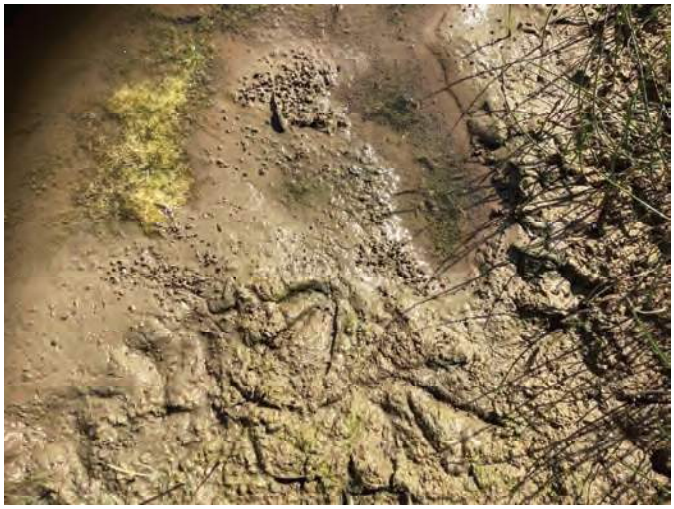
Site Photos



Upstream / NW



Downstream / SE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 37

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-01

SITE NUMBER: HM-063 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.093

LENGTH OF STREAM REACH (ft): 427 | LAT: 39.06840 | LONG: -83.41798 | RIVER MILE:

DATE: 10/03/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream within maintained field along road

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	40%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	5%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **7**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 6

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Baker Fork Distance from Evaluated Stream 1.13 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 97%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

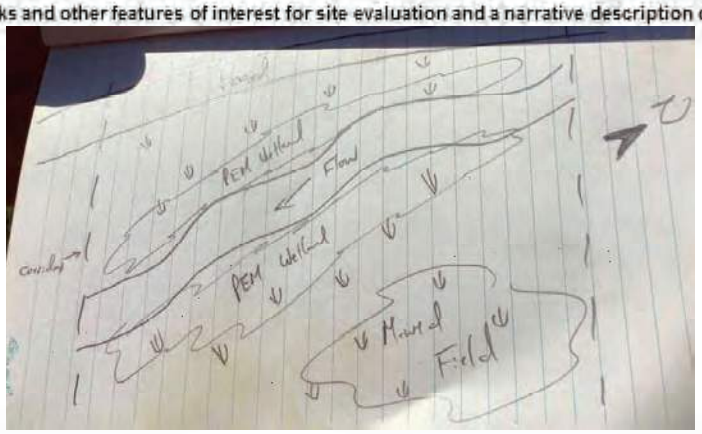
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream flows adjacent to road in mowed field. Flanked by narrow PEM wetland strip.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **12**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-02

SITE NUMBER: HM-064 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.010

LENGTH OF STREAM REACH (ft): 292 | LAT: 39.06679 | LONG: -83.41459 | RIVER MILE:

DATE: 10/03/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	10%	☐ ☑	SILT [3 pt]	25%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	55%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points

Substrate Max = 40: 7

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Baker Fork Distance from Evaluated Stream 0.96 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 70%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

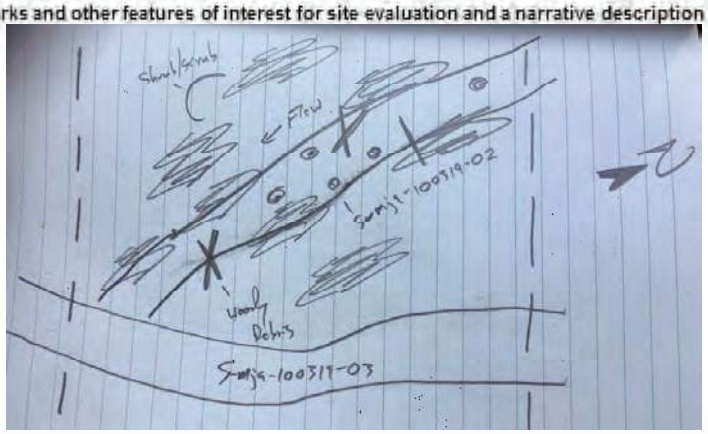
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream flows into Stream HM-065 (S-MJA-100319-03) just NE of SW corridor boundary.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **44**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-04

SITE NUMBER: HM-066 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.020

LENGTH OF STREAM REACH (ft): 162 | LAT: 39.06645 | LONG: -83.41388 | RIVER MILE:

DATE: 10/03/19 | SCORER: MJA | COMMENTS: Intermittent

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

Steam within infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☑	BLDR SLABS [16 pts]	20%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	45%	☐	CLAY or HARDPAN [0 pt]	5%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 65%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **34**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1.5

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Baker Fork Distance from Evaluated Stream 0.93 miles

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

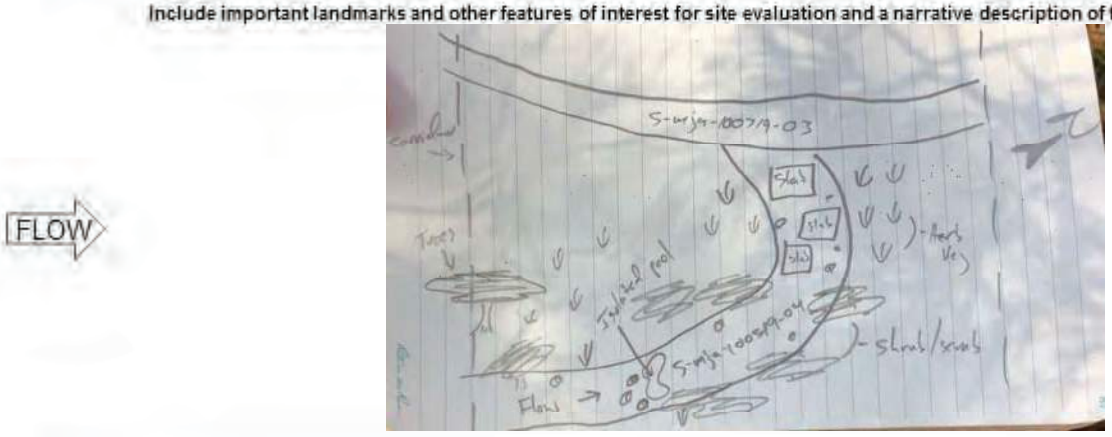
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Stream flows into Stream HM-065 (S-MJA-100319-03) from south.

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-05
SITE NUMBER: HM-067 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.007
LENGTH OF STREAM REACH (ft): 238 | LAT: 39.06488 | LONG: -83.40871 | RIVER MILE:
DATE: 10/03/19 | SCORER: MJA | COMMENTS: Ephemeral

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
Highly eroded stream in infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	45%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	25%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **20**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ 5 cm - 10 cm [15 pts]
☑ < 5 cm [5pts]
☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Isolated pools | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: Highly eroded channel | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Dry channel, no water (ephemeral)

COMMENTS: Estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☑ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Baker Fork Distance from Evaluated Stream 0.6 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

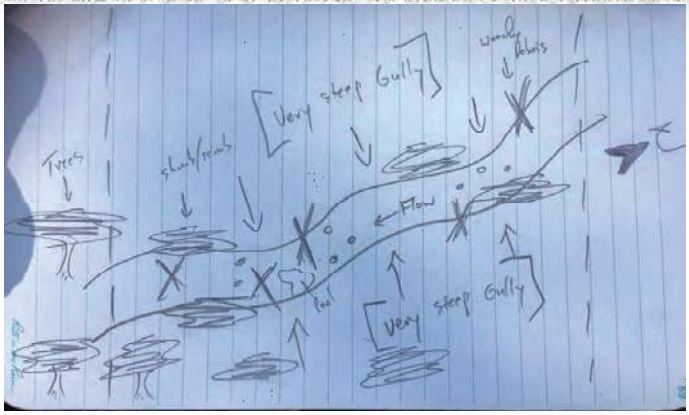
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream originates at access road and flows through highly eroded gully.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **42**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-06

SITE NUMBER: HM-068 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.010

LENGTH OF STREAM REACH (ft): 338 | LAT: 39.06446 | LONG: -83.40654 | RIVER MILE:

DATE: 10/03/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream in infrequen tly maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **17**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Isolated pools | MAXIMUM POOL DEPTH (inches): 18

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Baker Fork Distance from Evaluated Stream 0.45 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

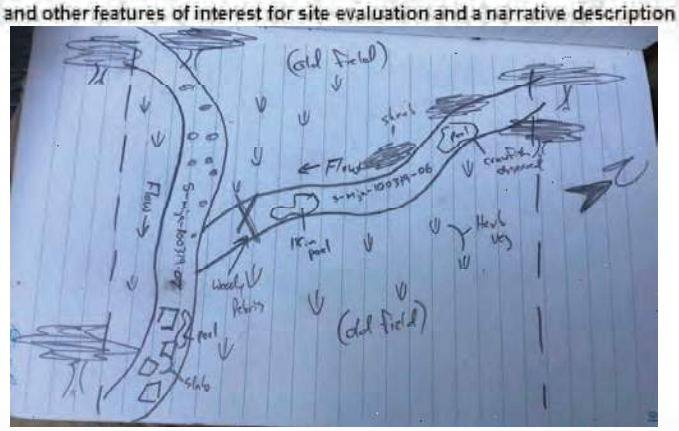
Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): _____

Comments Regarding Biology: several crawfish 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



Stream flows into Stream HM-070 (S-MJA-100319-07). Crawfish observed.

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 32

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-09

SITE NUMBER: HM-069 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 85 | LAT: 39.06441 | LONG: -83.40630 | RIVER MILE:

DATE: 10/03/19 | SCORER: MJA | COMMENTS: Intermittent

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☑ ☐	BEDROCK [16 pts]	60%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 19 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **22**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☑ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: Slow drip down gradient; stream interpretted as intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Baker Fork Distance from Evaluated Stream 0.47 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

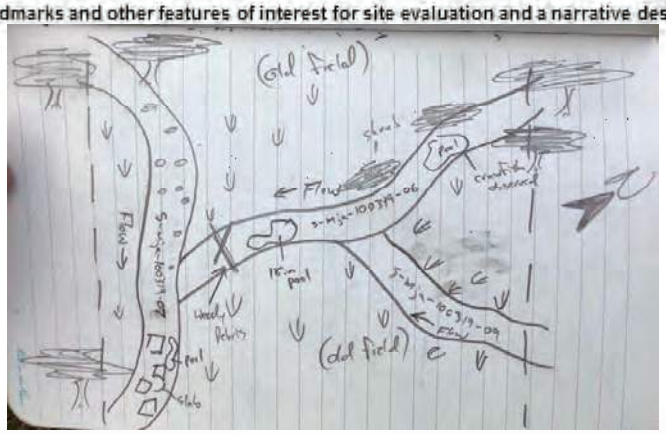
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream flows into Stream HM-068 (S-MJA-100319-06).

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 50

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-07

SITE NUMBER: HM-070 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.060

LENGTH OF STREAM REACH (ft): 417 | LAT: 39.06421 | LONG: -83.40622 | RIVER MILE:

DATE: 10/03/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream within infrequently maintained row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	45%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 55%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **20**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 6

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Baker Fork Distance from Evaluated Stream 0.4 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

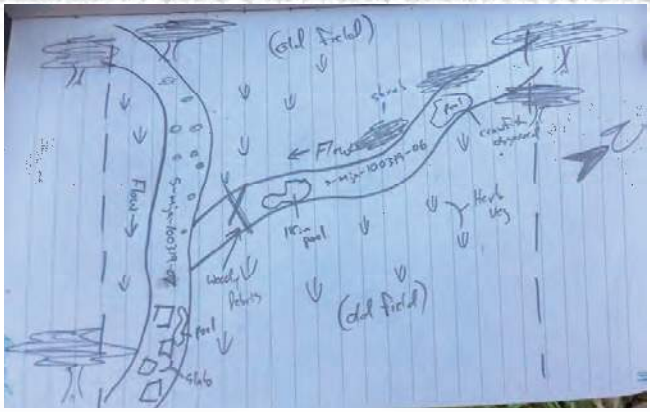
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream enters and exits SW border. Lined with old field vegetation.

Site Photos



upstream / W



downstream / E



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **34**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100319-08

SITE NUMBER: HM-071 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.002

LENGTH OF STREAM REACH (ft): 221 | LAT: 39.06373 | LONG: -83.40502 | RIVER MILE:

DATE: 10/03/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Highly eroded stream in t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☑	BEDROCK [16 pts]	35%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 55%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **29**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Baker Fork Distance from Evaluated Stream 0.38 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Sinking Spring NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Highland Township/City: Brush Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

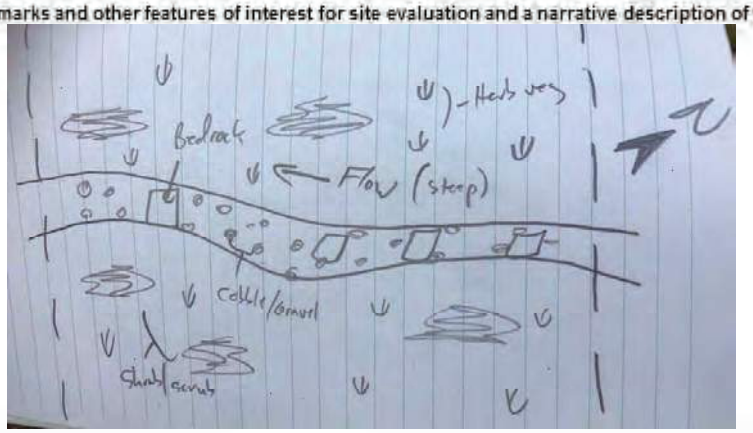
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Enters ROW from the north, exits south; surrounded by herb and scrub/shrub

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 26

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-KJD-100219-02

SITE NUMBER: HM-074 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 6.142

LENGTH OF STREAM REACH (ft): 210 | LAT: 39.05107 | LONG: -83.37312 | RIVER MILE:

DATE: 10/02/19 | SCORER: KJD | COMMENTS: Intermittent

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

stream between two pastures/overgrown fields

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☑	CLAY or HARDPAN [0 pt]	100%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 1

HHEI Metric Points

Substrate Max = 40: **1**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: Highly excised channel | AVERAGE BANKFULL WIDTH (feet): 10

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 (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Strait Creek Distance from Evaluated Stream 0.33 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: Franklin

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

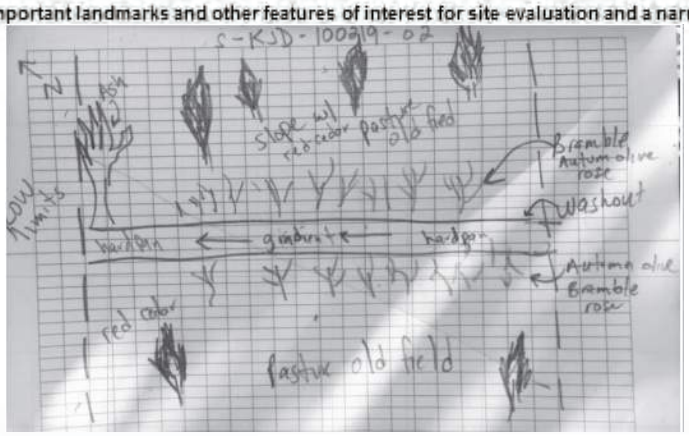
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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 stream in small valley between pastures. Shrubby veg with invasives.

Site Photos



upstream / SW
photo taken 01-15-2020



downstream / NE
photo taken 01-15-2020



substrate
photo taken 01-15-2020

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **6**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-KJD-100219-03

SITE NUMBER: HM-075 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.055

LENGTH OF STREAM REACH (ft): 245 | LAT: 39.04943 | LONG: -83.37038 | RIVER MILE:

DATE: 10/02/19 | SCORER: KJD | COMMENTS: Ephemeral

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 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
☐☐	BLDR SLABS **[16 pts]**	0%	☐☐	SILT **[3 pt]**	0%
☐☐	BOULDER (>256 mm) **[16 pts]**	0%	☐☐	LEAF PACK/WOODY DEBRIS **[3 pts]**	0%
☐☐	BEDROCK **[16 pts]**	0%	☐☐	FINE DETRITUS **[3 pts]**	0%
☐☐	COBBLE (65-256 mm) **[12 pts]**	0%	☑☑	CLAY or HARDPAN **[0 pt]**	100%
☐☐	GRAVEL (2-64 mm) **[9 pts]**	0%	☐☐	MUCK **[0 pts]**	0%
☐☐	SAND (<2 mm) **[6 pts]**	0%	☐☐	ARTIFICIAL **[3 pts]**	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 1

HHEI Metric Points

Substrate Max = 40

1

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters **[20 pts]**
- ☐ > 22.5 - 30 cm **[30 pts]**
- ☐ > 10 - 22.5 cm **[25 pts]**
- ☐ 5 cm - 10 cm **[15 pts]**
- ☐ < 5 cm **[5pts]**
- ☑ NO WATER OR MOIST CHANNEL **[0pts]**

COMMENTS: | **MAXIMUM POOL DEPTH** (inches): 0

Pool Depth Max = 30

0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') **[30 pts]**
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') **[25 pts]**
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") **[20 pts]**
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") **[15 pts]**
- ☑ ≤ 1.0 m (≤ 3' 3") **[5 pts]**

COMMENTS: | **AVERAGE BANKFULL WIDTH** (feet): 1

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☑ >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: Strait Creek Distance from Evaluated Stream 0.29 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 09/23/19 Quantity: 0.04

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

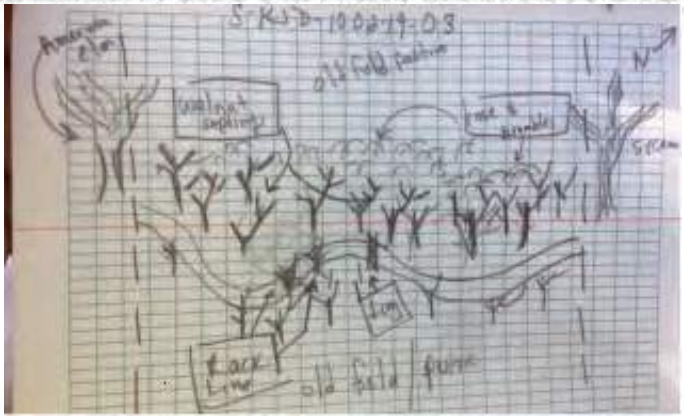
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Ephemeral headwater stream between pasture and old field. Shows sign of erosion with rack lines but no wrested vegetation

Site Photos



upstream / SW
photo taken 01-15-2020



downstream / NE
photo taken 01-15-2020



substrate
photo taken 01-15-2020

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **27**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100219-03

SITE NUMBER: HM-076 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.082

LENGTH OF STREAM REACH (ft): 449 | LAT: 39.04666 | LONG: -83.36413 | RIVER MILE:

DATE: 10/02/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream in infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	45%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☑	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **3** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40
7
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☑ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **3.5**

Pool Depth Max = 30
15

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **3**

Bankfull Width Max=30
5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☑ >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: Strait Creek Distance from Evaluated Stream 0.08 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: Franklin

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

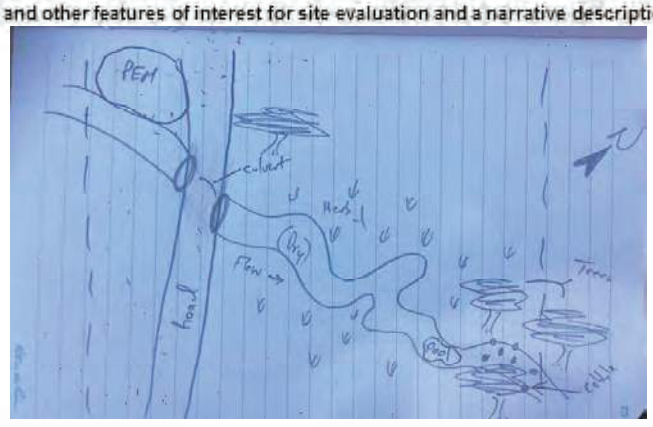
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

flows NE transversing ROW; flows past PEM wetland, under culverted road, and through herb veg

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



flows NE transversing ROW; flows past PEM wetland, under culverted road, and through herb veg

Site Photos



Upstream / W



Downstream / E



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **11**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100219-04

SITE NUMBER: HM-077 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.016

LENGTH OF STREAM REACH (ft): 67 | LAT: 39.04665 | LONG: -83.36392 | RIVER MILE:

DATE: 10/02/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream in infrequently maintained ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	35%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	60%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **6**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☑ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Strait Creek Distance from Evaluated Stream 0.09 mile

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: Franklin

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/23/19 Quantity: 0.12

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

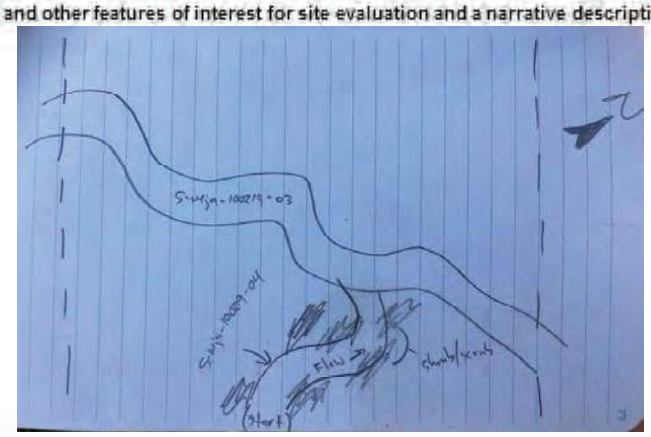
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

flows down ROW into S-MJA-100219-03, scrub/shrub surrounding

Site Photos



upstream / S



downstream / N



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 22

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100719-01

SITE NUMBER: HM-078 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.002

LENGTH OF STREAM REACH (ft): 13 | LAT: 39.03877 | LONG: -83.34789 | RIVER MILE:

DATE: 10/07/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained t-line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	20%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	60%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **12**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Recent rain, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Crooked Creek Distance from Evaluated Stream 1.23 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: Franklin

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

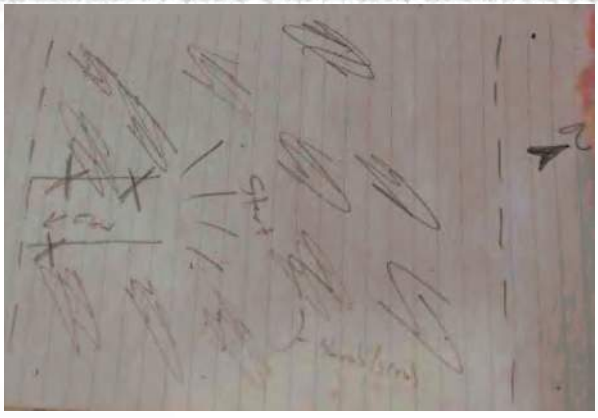
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Begins in ROW and flows S out, surrounded by scrub/shrub

Site Photos



Upstream / N



Downstream / S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 47

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100719-02
SITE NUMBER: HM-079 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.004
LENGTH OF STREAM REACH (ft): 211 | LAT: 39.03882 | LONG: -83.34729 | RIVER MILE:
DATE: 10/07/19 | SCORER: MJA | COMMENTS: Intermittent

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
Infrequently maintained within transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	25%	☐	CLAY or HARDPAN [0 pt]	5%
☐	GRAVEL (2-64 mm) [9 pts]	35%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 27 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Crooked Creek Distance from Evaluated Stream 1.2 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: Franklin

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

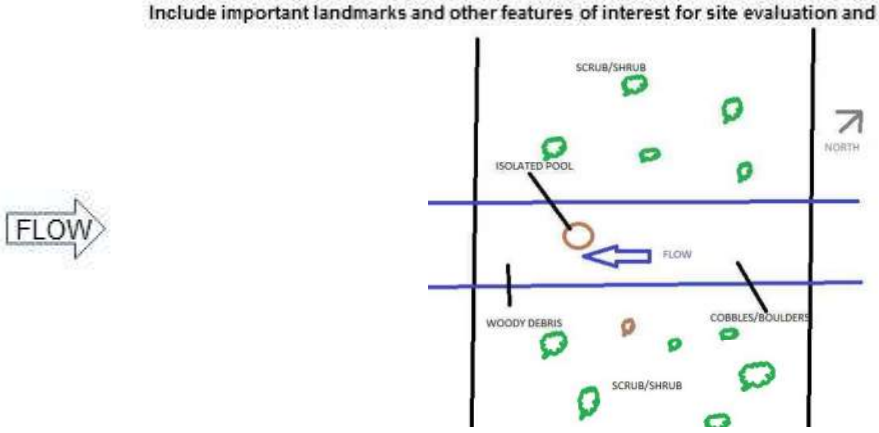
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Flows S into ROW, through scrub/shrub, and out of ROW

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 15

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100719-03

SITE NUMBER: HM-080 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.005

LENGTH OF STREAM REACH (ft): 243 | LAT: 39.03866 | LONG: -83.34676 | RIVER MILE:

DATE: 10/07/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☑ ☐	CLAY or HARDPAN [0 pt]	30%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	15%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Crooked Creek Distance from Evaluated Stream 1.2 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: Franklin

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

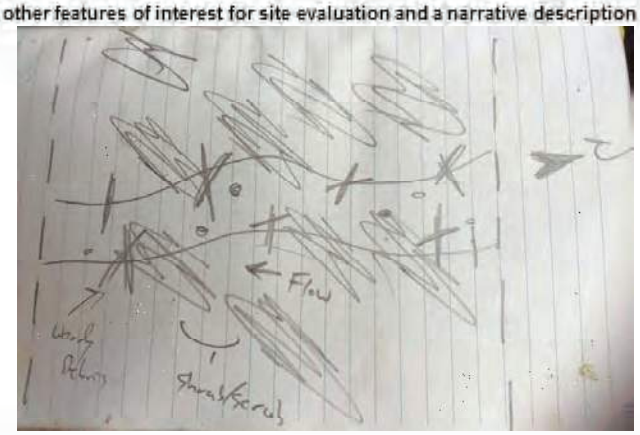
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



begins outside ROW, flows through scrub/shrub, and exits other side of ROW

Site Photos



Upstream / NE



Downstream / SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 24

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100719-04
SITE NUMBER: HM-081 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001
LENGTH OF STREAM REACH (ft): 179 | LAT: 39.03824 | LONG: -83.34620 | RIVER MILE:
DATE: 10/07/19 | SCORER: MJA | COMMENTS: Ephemeral

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
Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	5%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	30%	☐☑	CLAY or HARDPAN [0 pt]	25%
☐☐	GRAVEL (2-64 mm) [9 pts]	15%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	15%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points
Substrate Max = 40: **19**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Crooked Creek Distance from Evaluated Stream 1.2 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: Franklin

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Begins in T-line ROW and flows SW beyond ROW

Site Photos



Upstream / NE



Downstream / SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 28

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park, S-MJA-100719-05

SITE NUMBER: HM-082 | RIVER BASIN: 05090201 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 76 | LAT: 39.03784 | LONG: -83.34542 | RIVER MILE:

DATE: 10/07/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑ ☐	BEDROCK [16 pts]	20%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☐ ☑	CLAY or HARDPAN [0 pt]	35%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 16 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points

Substrate Max = 40: **23**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Crooked Creek Distance from Evaluated Stream 1.2 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 55%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

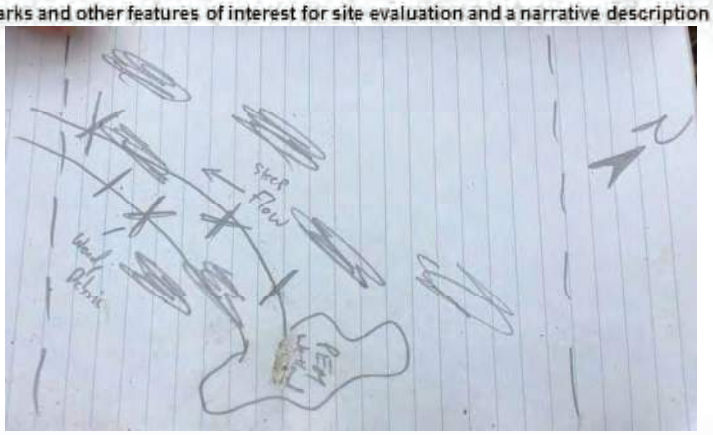
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



originates at PEM wetland and flows down steep hill to beyond ROW

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 66

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park, S-MJA-100719-06
SITE NUMBER: HM-083 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.410
LENGTH OF STREAM REACH (ft): 375 | LAT: 39.03433 | LONG: -83.33635 | RIVER MILE:
DATE: 10/07/19 | SCORER: MJA | COMMENTS: Intermittent

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
Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☑	COBBLE (65-256 mm) [12 pts]	25%	☐☐	CLAY or HARDPAN [0 pt]	15%
☑☐	GRAVEL (2-64 mm) [9 pts]	35%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	20%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **26**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☑ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 12

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Bettys Creek Distance from Evaluated Stream 0.54 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

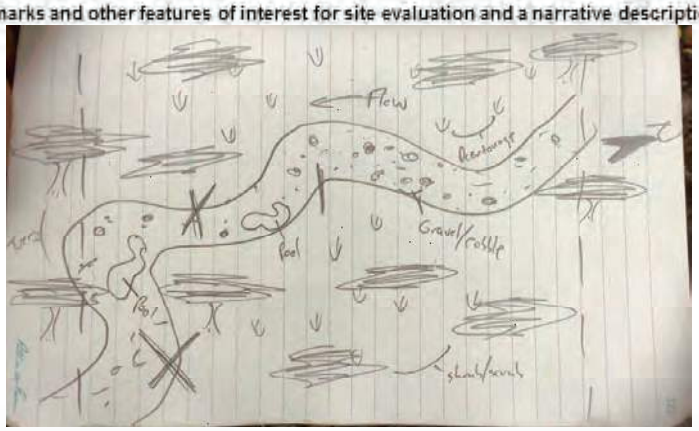
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



flows N-S, then NW-SE through scrub/shrub ROW; briefly re-enters ROW downstream

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **12**

SITE NAME/LOCATION AEP Hillsboro to Millbrook Park, S-MJA-100719-07
SITE NUMBER HM-084 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) 0.018
LENGTH OF STREAM REACH (ft) 48 LAT 39.03355 LONG -83.33523 RIVER MILE _____
DATE 10/07/19 SCORER MJA COMMENTS Ephemeral

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
Infrequently maintained t-line ROW, eroded

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS **[16 pts]**	0%	☐ ☑	SILT **[3 pt]**	20%
☐ ☐	BOULDER (>256 mm) **[16 pts]**	0%	☐ ☐	LEAF PACK/WOODY DEBRIS **[3 pts]**	0%
☐ ☐	BEDROCK **[16 pts]**	0%	☐ ☐	FINE DETRITUS **[3 pts]**	0%
☐ ☐	COBBLE (65-256 mm) **[12 pts]**	0%	☑ ☐	CLAY or HARDPAN **[0 pt]**	70%
☐ ☐	GRAVEL (2-64 mm) **[9 pts]**	5%	☐ ☐	MUCK **[0 pts]**	0%
☐ ☐	SAND (<2 mm) **[6 pts]**	5%	☐ ☐	ARTIFICIAL **[3 pts]**	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** (B) 4

HHEI Metric Points
Substrate Max = 40
7
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters **[20 pts]**
☐ > 22.5 - 30 cm **[30 pts]**
☐ > 10 - 22.5 cm **[25 pts]**
☐ 5 cm - 10 cm **[15 pts]**
☐ < 5 cm **[5pts]**
☑ NO WATER OR MOIST CHANNEL **[0pts]**

COMMENTS _____ **MAXIMUM POOL DEPTH** (inches) : 0

Pool Depth Max = 30
0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') **[30 pts]**
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') **[25 pts]**
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") **[20 pts]**
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") **[15 pts]**
☑ ≤ 1.0 m (≤ 3' 3") **[5 pts]**

COMMENTS _____ **AVERAGE BANKFULL WIDTH** (feet) 1

Bankfull Width Max=30
5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☐ Moist Channel, isolated pools, no flow (intermittent)
☑ Dry channel, no water (ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None ☐ 0.5 ☐ 1.0 ☑ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Bettys Creek Distance from Evaluated Stream 0.5 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

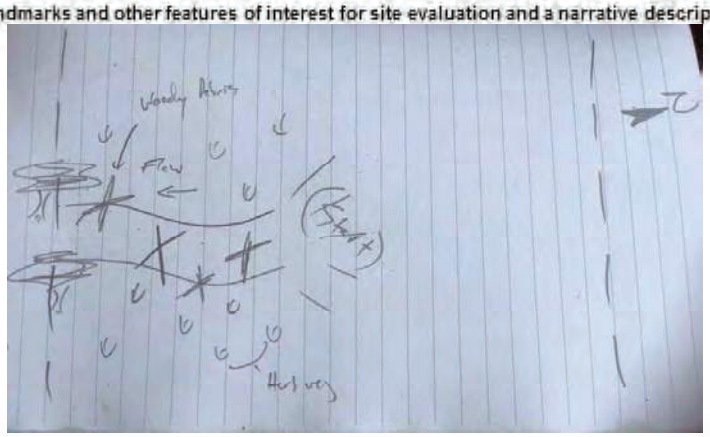
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



begins in ROW and flows S out of ROW

Site Photos



Upstream / N



Downstream / S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **11**

SITE NAME/LOCATION AEP Hillsboro to Millbrook Park 138 kV, S-MJA-100819-02
SITE NUMBER HM-086 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) 0.009
LENGTH OF STREAM REACH (ft) 63 LAT 39.03224 LONG -83.33225 RIVER MILE _____
DATE 10/08/19 SCORER MJA COMMENTS Ephemeral

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
Infrequently maintained t-line ROW, Eroded

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	70%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points
Substrate Max = 40: **6**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ 5 cm - 10 cm [15 pts]
☐ < 5 cm [5pts]
☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☐ Moist Channel, isolated pools, no flow (intermittent)
☑ Dry channel, no water (ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☑ 1.5 ☐ 2.5 ☐ >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: Bettys Creek Distance from Evaluated Stream 0.37 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

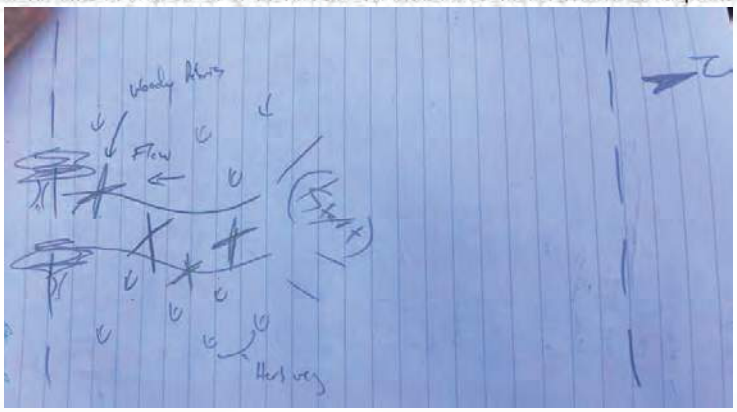
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

begins in ROW and flows SW out of ROW, surrounded by herb veg

Site Photos



Upstream / NE



Downstream / SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **56**

SITE NAME/LOCATION AEP Hillsboro to Millbrook Park, S-MJA-100819-05
SITE NUMBER HM-088 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) 0.061
LENGTH OF STREAM REACH (ft) 847 LAT 39.02942 LONG -83.32513 RIVER MILE _____
DATE 10/08/19 SCORER MJA COMMENTS Intermittent

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
Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	40%	☐☐	CLAY or HARDPAN [0 pt]	5%
☐☑	GRAVEL (2-64 mm) [9 pts]	30%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	20%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **5**

HHEI Metric Points
Substrate Max = 40
26
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : **3**

Pool Depth Max = 30
15

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) **3.5**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS Minimal flow, interpretted as intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☑	>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: Bettys Creek Distance from Evaluated Stream 0.29 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

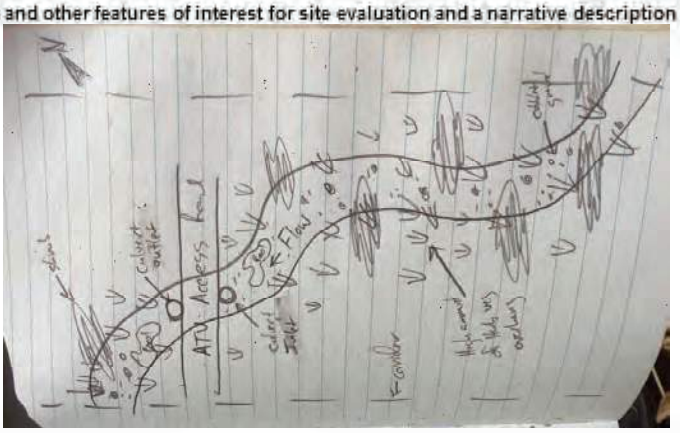
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Begins outside ROW and flows SE, crosses ATV path, and continues beyond ROW

Site Photos



Upstream / SSE



Downstream / NNW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 33

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park 138 kV, S-MJA-100819-06
SITE NUMBER: HM-089 RIVER BASIN: 05060002 RIVER CODE: DRAINAGE AREA (mi²): 0.036
LENGTH OF STREAM REACH (ft): 233 LAT: 39.02873 LONG: -83.32309 RIVER MILE:
DATE: 10/08/19 SCORER: MJA COMMENTS: Ephemeral

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
Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points
Substrate Max = 40: **28**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Bettys Creek Distance from Evaluated Stream 0.45 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

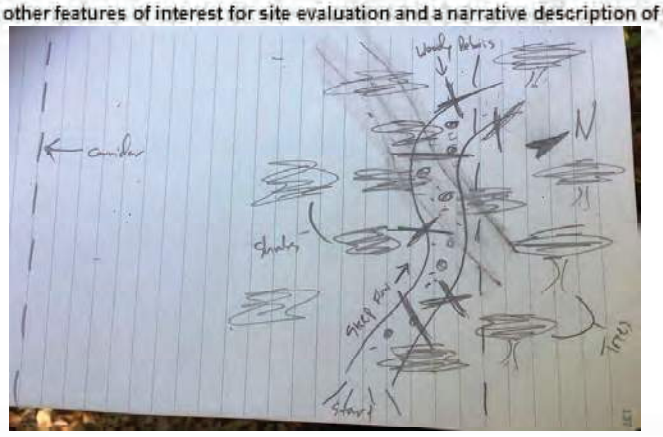
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Begins in ROW and flows NW out of ROW down steep hill

Site Photos



upstream / SE



downstream / NW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 32

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park 138 kV, S-MJA-100919-01

SITE NUMBER: HM-090 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 124 | LAT: 39.02225 | LONG: -83.30388 | RIVER MILE:

DATE: 10/09/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **27**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Scioto Brush Creek Distance from Evaluated Stream 0.21 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 70%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

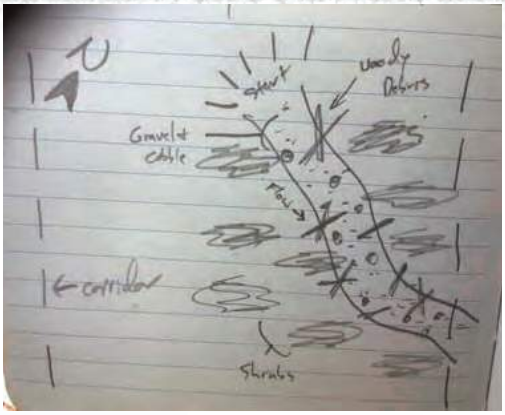
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Infrequently maintained t-line ROW; shrubby vegetation on banks

Site Photos



Upstream / S-SW



Downstream / N-NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **19**

SITE NAME/LOCATION: AEP Hillsboro to Millbrook Park, S-MJA-100919-02

SITE NUMBER: HM-091 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 172 | LAT: 39.02204 | LONG: -83.30355 | RIVER MILE:

DATE: 10/09/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	10%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	5%	☑☐	CLAY or HARDPAN [0 pt]	45%
☐☑	GRAVEL (2-64 mm) [9 pts]	35%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	5%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **14**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Scioto Brush Creek Distance from Evaluated Stream 0.22 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

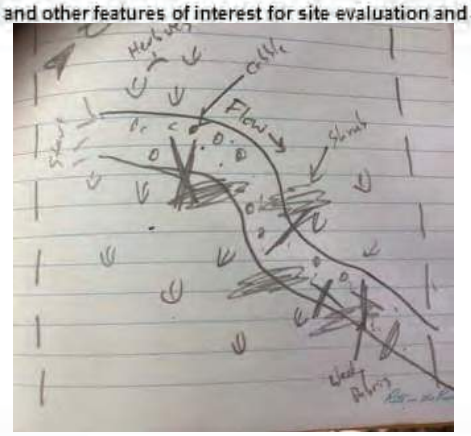
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream within infrequently maintained transmission line ROW

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 47

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-100919-04

SITE NUMBER: HM-093 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.280

LENGTH OF STREAM REACH (ft): 222 | LAT: 39.02031 | LONG: -83.29865 | RIVER MILE:

DATE: 10/09/19 | SCORER: MJA | COMMENTS: Intermittent

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **27**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 6

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Estimated intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Scioto Brush Creek Distance from Evaluated Stream 0.15 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

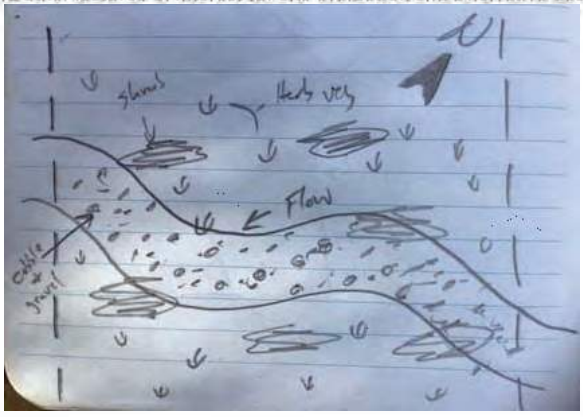
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Infrequently maintained t-line ROW

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 36

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101019-03

SITE NUMBER: HM-094 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 117 | LAT: 39.01822 | LONG: -83.29102 | RIVER MILE:

DATE: 10/10/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☑ ☐	BEDROCK [16 pts]	30%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **31**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Scioto Brush Creek Distance from Evaluated Stream 0.56 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 55%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

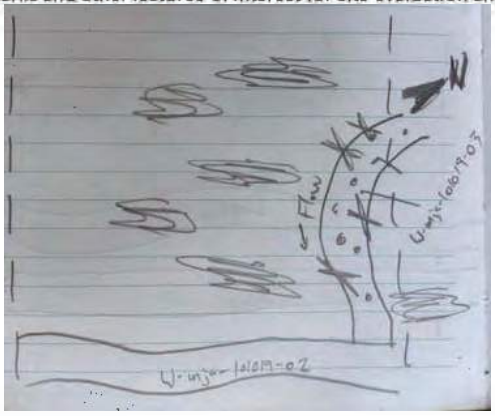
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream within infrequently maintained T-line ROW

Site Photos



upstream /NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 38

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101019-02

SITE NUMBER: HM-095 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 224 | LAT: 39.01822 | LONG: -83.29104 | RIVER MILE:

DATE: 10/10/19 | SCORER: MJA | COMMENTS: Intermittent

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

Infrequently maintained t-line ROW, adjacent to highway

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☑ ☐	BEDROCK [16 pts]	60%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points

Substrate Max = 40: **28**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☑ Immature Forest, Shrub or Old Field	☑	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☑	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Highway on left bank

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: stream estimated intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Scioto Brush Creek Distance from Evaluated Stream 0.52 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

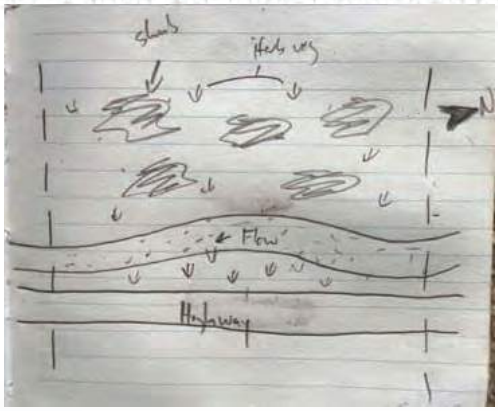
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream within infrequently maintained t-line ROW, adjacent to highway

Site Photos



Upstream / NE



Downstream / SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 77

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101019-01

SITE NUMBER: HM-096 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.380

LENGTH OF STREAM REACH (ft): 228 | LAT: 39.01767 | LONG: -83.29020 | RIVER MILE:

DATE: 10/10/19 | SCORER: MJA | COMMENTS: Intermittent

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

Infrequently maintained t-line ROW; in b/w highway

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **27**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 8

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☑ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 10

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Highway near both banks

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: stream is estimated to be intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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 60.25 (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Scioto Brush Creek Distance from Evaluated Stream 0.56 mile

☐ 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: Byington NRCS Soil Map Page: NRCS Soil Map Stream Order:

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results):

Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)

Is the sampling reach representative of the stream (Y/N) Y If not, explain:

Additional comments/description of pollution impacts:

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known):

Frogs or Tadpoles Observed? (Y/N) Y Species observed (if known):

Salamanders Observed? (Y/N) N Species observed (if known):

Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known):

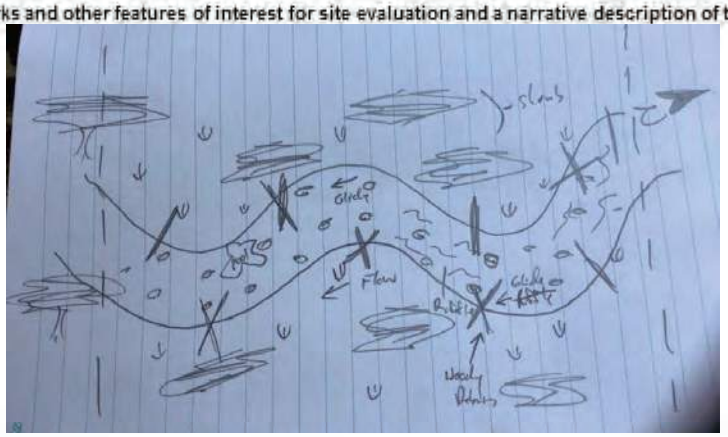
Comments Regarding Biology:

crawfish and 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

FLOW



stream is within an infrequently maintained T-line ROW; in between highway

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 36

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101019-04

SITE NUMBER: HM-097 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 281 | LAT: 39.01703 | LONG: -83.28838 | RIVER MILE:

DATE: 10/10/19 | SCORER: MJA | COMMENTS: Intermittent

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

Infrequently maintained t-line row; adjacent to highway

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☑	BEDROCK [16 pts]	30%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	35%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 45%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **31**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Highway on right bank

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: Channel moist, but no isolated pools observed. Estimated intermittent.

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Scioto Brush Creek Distance from Evaluated Stream 1.06 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

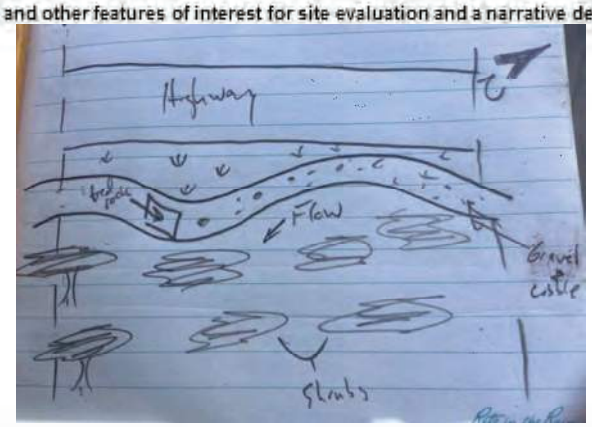
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream within and perpendicular to infrequently maintained T-line row; adjacent to highway

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 11

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101019-05

SITE NUMBER: HM-098 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 164 | LAT: 39.01677 | LONG: -83.28555 | RIVER MILE:

DATE: 10/10/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW; ATV access road crossing

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☑ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	45%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **6**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Scioto Brush Creek Distance from Evaluated Stream 1.05 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 70%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

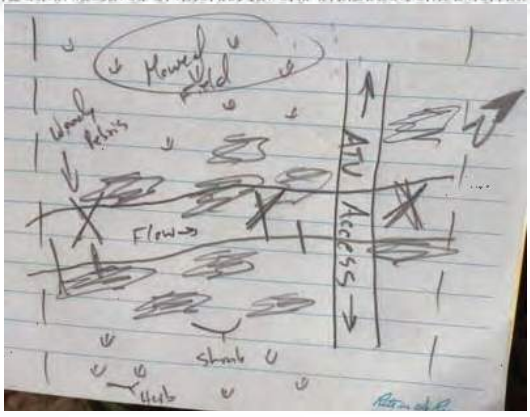
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream within infrequently maintained t-line ROW; ATV access road crossing

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 37

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101019-06

SITE NUMBER: HM-099 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 968 | LAT: 39.01505 | LONG: -83.28029 | RIVER MILE:

DATE: 10/10/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	10%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☑	COBBLE (65-256 mm) [12 pts]	25%	☐☐	CLAY or HARDPAN [0 pt]	5%
☑☐	GRAVEL (2-64 mm) [9 pts]	40%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	15%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **27**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Isolated pools | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Recent rain, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Straight Fork Distance from Evaluated Stream 0.1 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

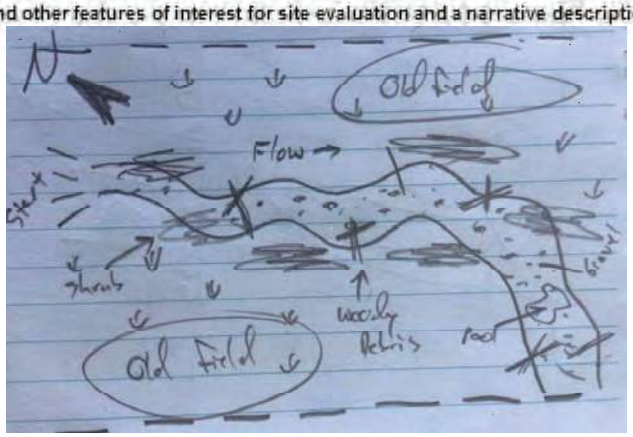
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream begins in infrequently maintained t-line ROW, runs parallel, then turns S and continues beyond ROW

Site Photos



Upstream / NW



Downstream / SE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **22**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101019-08

SITE NUMBER: HM-101 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0002

LENGTH OF STREAM REACH (ft): 366 | LAT: 39.01460 | LONG: -83.27803 | RIVER MILE:

DATE: 10/10/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☐ ☐	CLAY or HARDPAN [0 pt]	20%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **17**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☑ >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: Straight Fork Distance from Evaluated Stream .01 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/07/19 Quantity: 0.16

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

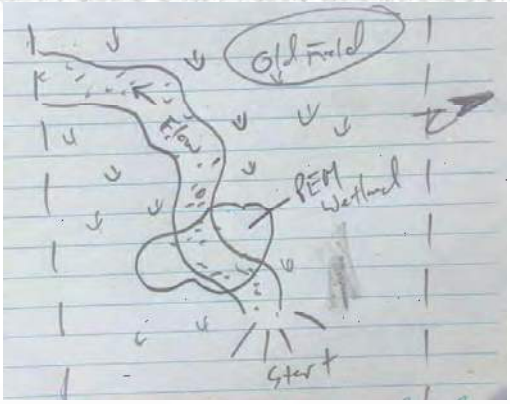
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Stream within infrequently maintained t-line ROW, flows E-W through PEM wetland and continues beyond ROW

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **13**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101119-01

SITE NUMBER: HM-102 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0004

LENGTH OF STREAM REACH (ft): 404 | LAT: 39.01318 | LONG: -83.27216 | RIVER MILE:

DATE: 10/11/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW; originates in cow pasture

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☑ ☐	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **8**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Shrubs along banks downstream

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Straight Fork Distance from Evaluated Stream 0.86 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/11/19 Quantity: 0.14

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

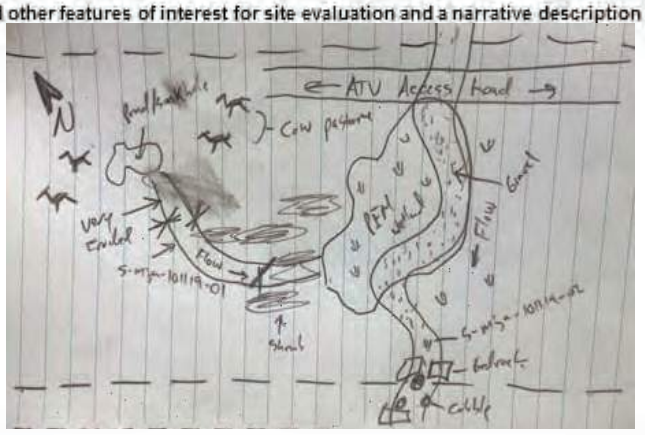
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



stream within infrequently maintained t-line ROW; originates in cow pasture

Site Photos



upstream / W



downstream / E



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 14

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101119-02

SITE NUMBER: HM-103 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.045

LENGTH OF STREAM REACH (ft): 233 | LAT: 39.01321 | LONG: -83.27205 | RIVER MILE:

DATE: 10/11/19 | SCORER: MJA | COMMENTS: Intermittent

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

Infrequently maintained t-line row; ATV crossing

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	5%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☑	CLAY or HARDPAN [0 pt]	10%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **9**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Straight Fork Distance from Evaluated Stream 0.80 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/11/19 Quantity: 0.14

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

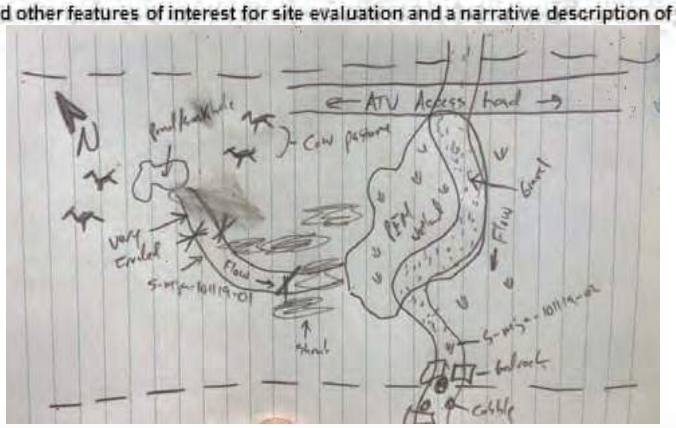
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



within infrequently maintained t-line row; ATV crossing

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **22**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101119-03

SITE NUMBER: HM-104 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.012

LENGTH OF STREAM REACH (ft): 300 | LAT: 39.01305 | LONG: -83.27125 | RIVER MILE:

DATE: 10/11/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	25%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: 17
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Straight Fork Distance from Evaluated Stream 0.80 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Adams Township/City: FRANKLIN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/11/19 Quantity: 0.14

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

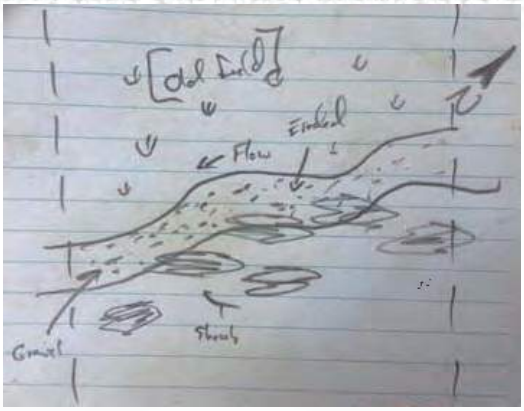
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream within infrequently maintained transmission line row

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 32

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101119-04

SITE NUMBER: HM-105 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.005

LENGTH OF STREAM REACH (ft): 126 | LAT: 39.01183 | LONG: -83.26719 | RIVER MILE:

DATE: 10/11/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	15%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	35%	☐☐	CLAY or HARDPAN [0 pt]	5%
☐☑	GRAVEL (2-64 mm) [9 pts]	30%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **27**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Straight Fork Distance from Evaluated Stream 0.73 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/11/19 Quantity: 0.14

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

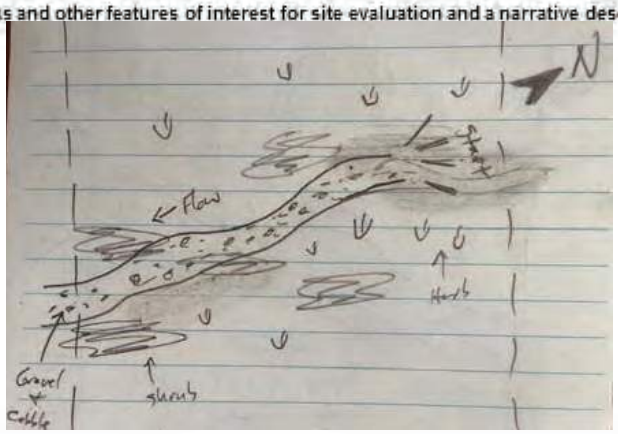
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream within infrequently maintained t-line ROW

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **63**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101119-05

SITE NUMBER: HM-106 RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.086

LENGTH OF STREAM REACH (ft): 209 LAT: 39.01121 LONG: -83.26331 RIVER MILE: _____

DATE: 10/11/19 SCORER: MJA COMMENTS: Intermittent

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	15%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	15%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	30%	☐☐	CLAY or HARDPAN [0 pt]	5%
☐☑	GRAVEL (2-64 mm) [9 pts]	20%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points

Substrate Max = 40: **28**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 6

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☑	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Straight Fork Distance from Evaluated Stream 0.74 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/11/19 Quantity: 0.14

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

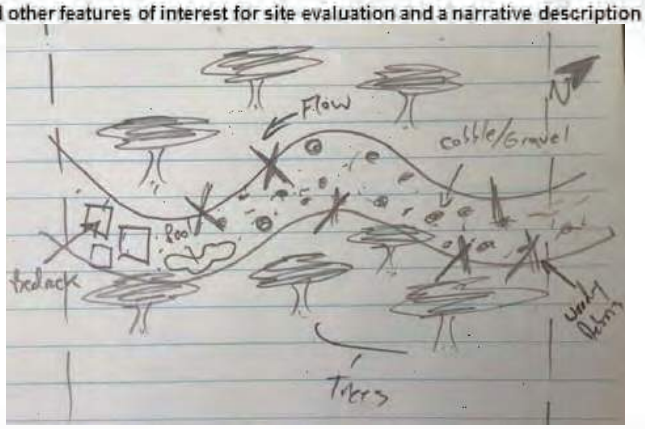
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream within infrequently maintained t-line ROW

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **20**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101119-07

SITE NUMBER: HM-107 RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 53 LAT: 39.01139 LONG: -83.26318 RIVER MILE: _____

DATE: 10/11/19 SCORER: MJA COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	15%	☑☐	CLAY or HARDPAN [0 pt]	40%
☐☑	GRAVEL (2-64 mm) [9 pts]	20%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **15**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Straight Fork Distance from Evaluated Stream 0.75 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/11/19 Quantity: 0.14

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 45%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

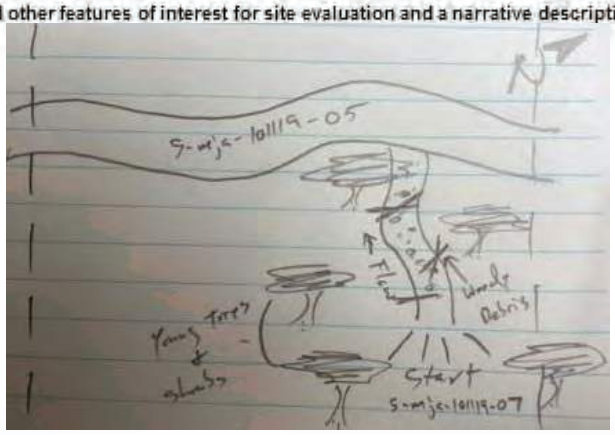
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream within infrequently maintained t-line ROW

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 14

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-101119-06

SITE NUMBER: HM-108 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 119 | LAT: 39.01106 | LONG: -83.26320 | RIVER MILE:

DATE: 10/11/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	35%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☐ ☑	CLAY or HARDPAN [0 pt]	35%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) 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 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Straight Fork Distance from Evaluated Stream 0.75 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/11/19 Quantity: 0.14

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

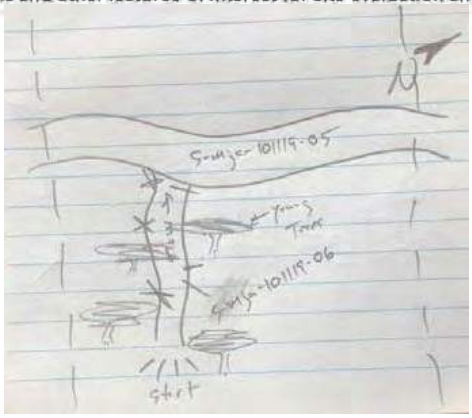
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Stream within infrequently maintained transmission line row

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 24

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101419-06

SITE NUMBER: HM-110 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 101 | LAT: 39.00976 | LONG: -83.25682 | RIVER MILE:

DATE: 10/14/19 | SCORER: BCR | COMMENTS: Ephemeral

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 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☑ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	60%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **19**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Bull Run Distance from Evaluated Stream 10 feet

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

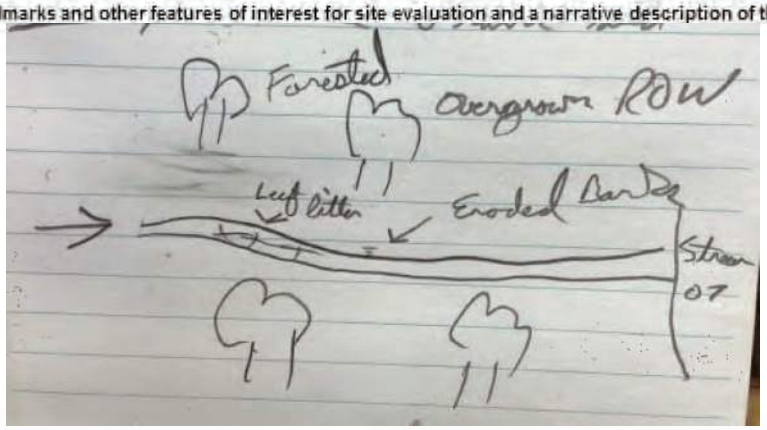
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



flows parallel to ROW down a hill into S-BCR-101419-07 (HM-109)

Site Photos



upstream / E
photo taken 01-15-2020



downstream / W
photo taken 01-15-2020



substrate
photo taken 01-15-2020

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 29

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101419-05

SITE NUMBER: HM-111 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.006

LENGTH OF STREAM REACH (ft): 31 | LAT: 39.00880 | LONG: -83.25389 | RIVER MILE:

DATE: 10/14/19 | SCORER: BCR | COMMENTS: Ephemeral

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

Cleared riparian

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	45%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☑	GRAVEL (2-64 mm) [9 pts]	45%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 45%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points

Substrate Max = 40: **24**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Rarden Creek Distance from Evaluated Stream 0.5 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

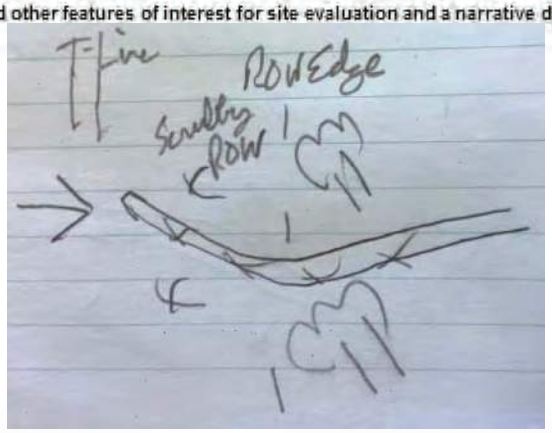
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



in a steep ravine, begins at edge of ROW and flows south out of ROW

Site Photos



Upstream / N



Downstream / S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101419-04

SITE NUMBER: HM-112 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0003

LENGTH OF STREAM REACH (ft): 108 | LAT: 39.00877 | LONG: -83.25353 | RIVER MILE:

DATE: 10/14/19 | SCORER: BCR | COMMENTS: Ephemeral

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

Cleared riparian

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☑	COBBLE (65-256 mm) [12 pts]	40%	☐☐	CLAY or HARDPAN [0 pt]	0%
☑☐	GRAVEL (2-64 mm) [9 pts]	40%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **25**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Rarden Creek Distance from Evaluated Stream 0.5 mile

☐ 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: Byington NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

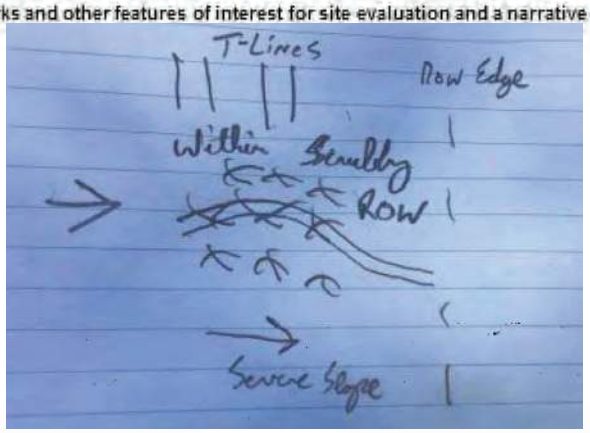
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

begins in middle of ROW and flows SW out of ROW, covered with bramble

Site Photos



Upstream / E



Downstream / W



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **24**

SITE NAME/LOCATION AEP Hillsboro - Millbrook Park 138kV, S-BCR-101419-03

SITE NUMBER HM-113 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) 0.038

LENGTH OF STREAM REACH (ft) 354 LAT 39.00820 LONG -83.24959 RIVER MILE _____

DATE 10/14/19 SCORER BCR COMMENTS Ephemeral

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

Cleared Riparian

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: 19

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) 2.5

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Rarden Creek Distance from Evaluated Stream 0.4 mile

☐ 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: Latham NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: UD, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

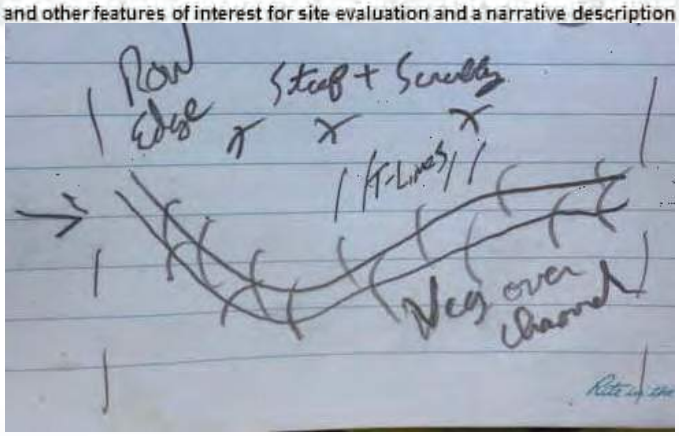
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

in a ravine, continues outside of ROW on both sides, covered in brambles

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 67

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101419-02

SITE NUMBER: HM-114 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.047

LENGTH OF STREAM REACH (ft): 231 | LAT: 39.00722 | LONG: -83.24631 | RIVER MILE:

DATE: 10/14/19 | SCORER: BCR | COMMENTS: Intermittent

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

Cleared riparian

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☑ ☐	BOULDER (>256 mm) [16 pts]	40%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 80%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **32**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☑ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 7.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Rarden Creek Distance from Evaluated Stream 0.33 mile

☐ 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: Latham NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

continues outside of ROW on both ends, at bottom of a valley

Site Photos



Upstream / N



Downstream / S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 40

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101419-01

SITE NUMBER: HM-115 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.086

LENGTH OF STREAM REACH (ft): 324 | LAT: 39.00683 | LONG: -83.24407 | RIVER MILE:

DATE: 10/14/19 | SCORER: BCR | COMMENTS: Intermittent

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

Cleared riparian

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	15%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☑	COBBLE (65-256 mm) [12 pts]	40%	☐☐	CLAY or HARDPAN [0 pt]	0%
☑☐	GRAVEL (2-64 mm) [9 pts]	40%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	5%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 55%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **25**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: Estimate intermittent flow regime

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Rarden Creek Distance from Evaluated Stream 0.36 mile

☐ 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: Latham NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: RARDEN

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

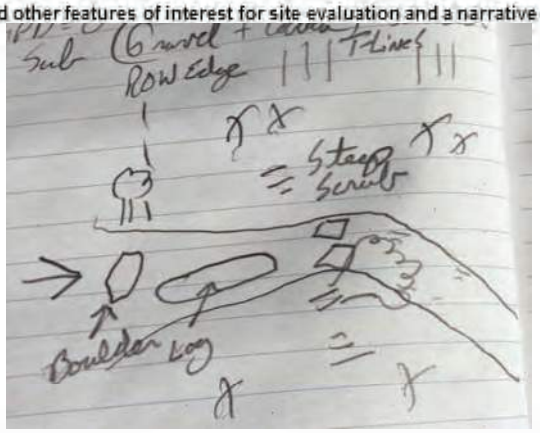
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Continues beyond ROW upstream and downstream, in a ravine.

Site Photos

upstream / NE
photo taken 01-15-2020



downstream / SW
photo taken 01-15-2020



substrate
photo taken 01-15-2020



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **29**

SITE NAME/LOCATION AEP Hillsboro - Millbrook Park 138kV, S-BCR-101519-06

SITE NUMBER HM-116 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) 0.019

LENGTH OF STREAM REACH (ft) 275 LAT 39.00137 LONG -83.22546 RIVER MILE _____

DATE 10/15/19 SCORER JFW COMMENTS Intermittent

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

Fill

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	65%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 65% (A) **15**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

(B) **4** TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40 **19**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ 5 cm - 10 cm [15 pts]
☑ < 5 cm [5pts]
☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : **1**

Pool Depth Max = 30 **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) **3**

Bankfull Width Max=30 **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☐	Narrow <5m	☑	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Dry channel, no water (ephemeral)

COMMENTS Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Camp Creek Distance from Evaluated Stream 0.06 mile

☐ 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: Latham NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: CAMP CREEK

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/19 Quantity: 0.05

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

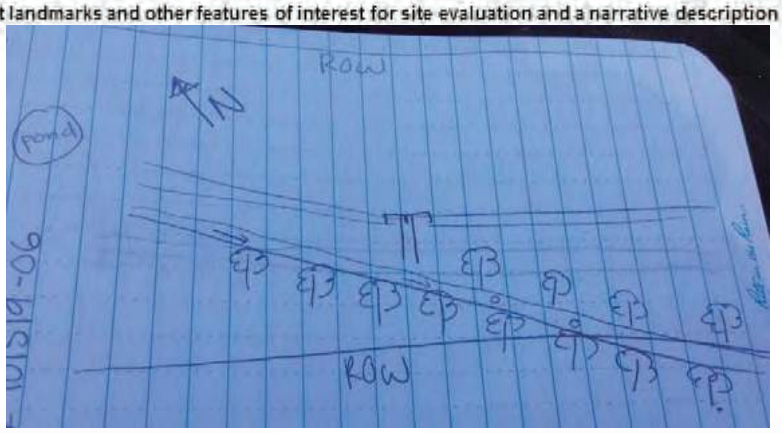
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Possibly flows from pond uphill, flows thru woods on the edge of ROW on a slope

Site Photos



downstream / SSE



upstream / NNW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **44**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101519-04

SITE NUMBER: HM-118 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.150

LENGTH OF STREAM REACH (ft): 190 | LAT: 38.99764 | LONG: -83.21812 | RIVER MILE:

DATE: 10/15/19 | SCORER: BCR | COMMENTS: Intermittent

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

Cleared riparian

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points

Substrate Max = 40: **24**

A + B

2. Maximum Pool Depth

(*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **8**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐ ☐	Mature Forest, Wetland	☐ ☐	Conservation Tillage
☐	☐ Moderate 5-10m	☑ ☑	Immature Forest, Shrub or Old Field	☐ ☐	Urban or Industrial
☐	☐ Narrow <5m	☐ ☐	Residential, Park, New Field	☐ ☐	Open Pasture, Row Crop
☐	☐ None	☐ ☐	Fenced Pasture	☐ ☐	Mining or Construction

COMMENTS:

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Camp Creek Distance from Evaluated Stream 0.14 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

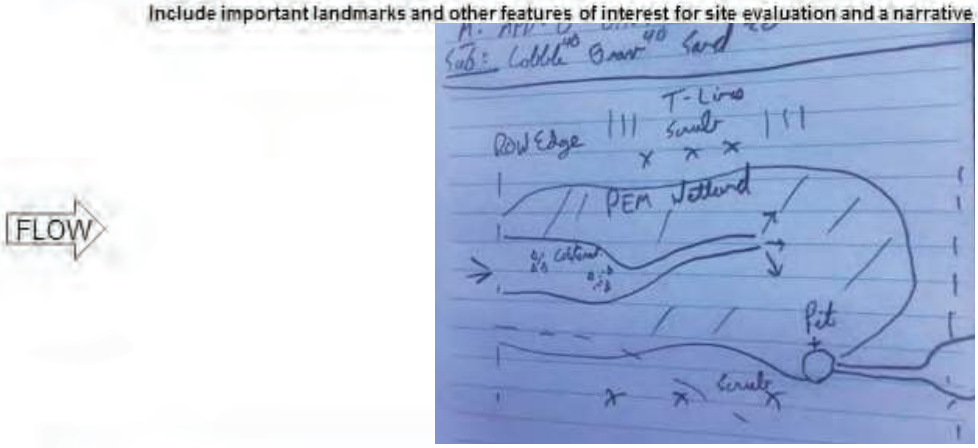
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Stream channel begins outside of ROW to SW, flows thru wetland in a valley, loses its defined channel and then picks up again at a pit and flows NE out of ROW.

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 45

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101519-03

SITE NUMBER: HM-119 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.069

LENGTH OF STREAM REACH (ft): 240 | LAT: 38.99564 | LONG: -83.21421 | RIVER MILE:

DATE: 10/15/19 | SCORER: BCR | COMMENTS: Intermittent

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

Cleared riparian

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	40%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☑	GRAVEL (2-64 mm) [9 pts]	40%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	15%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☑ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Camp Creek Distance from Evaluated Stream 0.29 mile

☐ 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: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

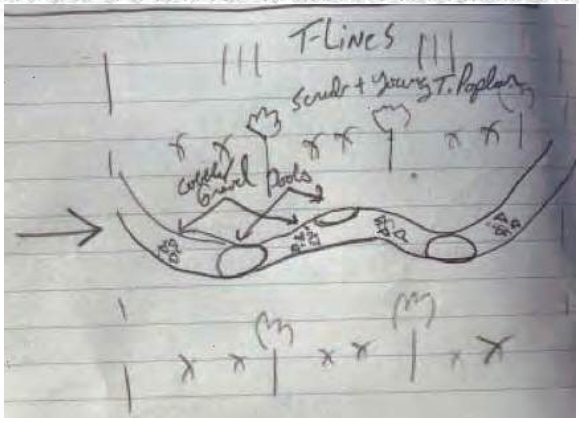
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Continues beyond ROW upstream and downstream, in a valley.

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 35

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101519-02

SITE NUMBER: HM-120 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.150

LENGTH OF STREAM REACH (ft): 287 | LAT: 38.99151 | LONG: -83.20630 | RIVER MILE:

DATE: 10/15/19 | SCORER: BCR | COMMENTS: Intermittent

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

Ford crossing, cleared riparian

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	10%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	40%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☑	GRAVEL (2-64 mm) [9 pts]	40%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **25**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

Pool Depth Max = 30: **5**

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1.5

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

Bankfull Width Max=30: **5**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent stream.

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Camp Creek Distance from Evaluated Stream 0.63 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.08

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

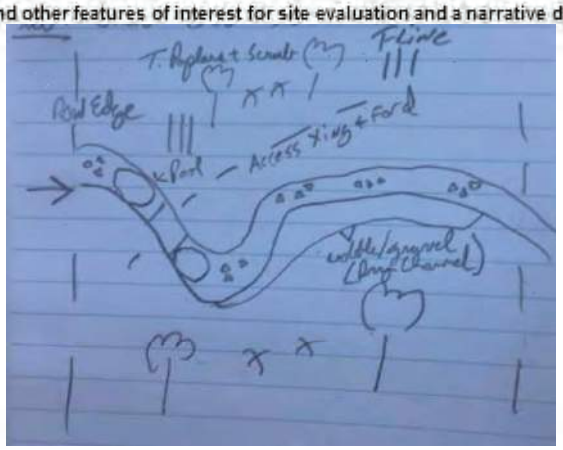
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Continues outside of ROW upstream and downstream, in a valley with an access road crossing.

Site Photos



Upstream / W



Downstream / E



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 25

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101519-01
SITE NUMBER: HM-121 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0005
LENGTH OF STREAM REACH (ft): 154 | LAT: 38.99008 | LONG: -83.20370 | RIVER MILE:
DATE: 10/15/19 | SCORER: BCR | COMMENTS: Ephemeral

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
Timber clearing and fill

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	40%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **15** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **5**

HHEI Metric Points
Substrate Max = 40: **20**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **2**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☑	☑	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral flow regime

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Camp Creek Distance from Evaluated Stream 0.71 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/19 Quantity: 0.02

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) N If not, explain: See impacts below.

Additional comments/description of pollution impacts: Recent clearing activity causing timber, sediment, and other fill to occupy channel

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

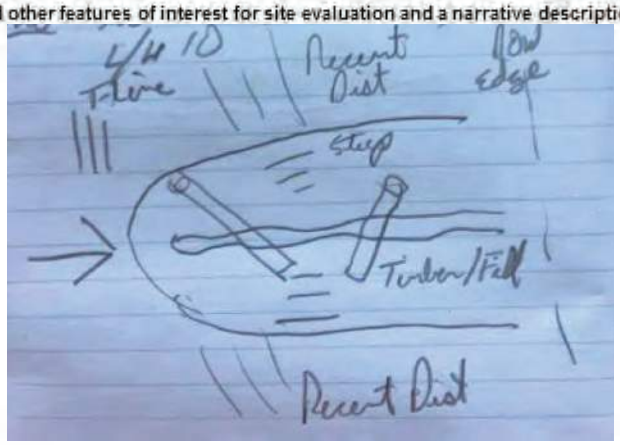
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Ephemeral stream at edge of recently cleared T-Line ROW, recently filled.

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 52

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101619-05
SITE NUMBER: HM-122 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.089
LENGTH OF STREAM REACH (ft): 284 | LAT: 38.98580 | LONG: -83.19746 | RIVER MILE:
DATE: 10/16/19 | SCORER: JFW | COMMENTS: Intermittent

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
Crosses existing T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	5%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	20%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	35%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **27**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 9

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Left Fork Camp Creek Distance from Evaluated Stream 0.47 miles

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

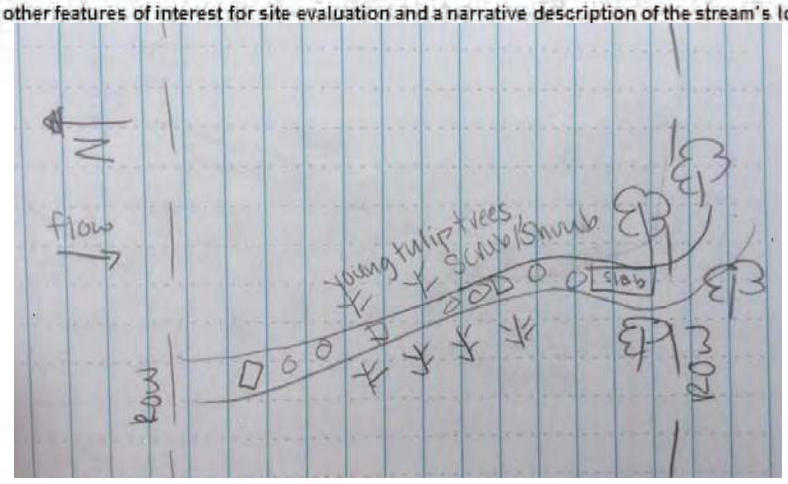
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Crosses existing T-Line ROW.

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 58

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101619-04
SITE NUMBER: HM-123 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.054
LENGTH OF STREAM REACH (ft): 246 | LAT: 38.98431 | LONG: -83.19470 | RIVER MILE:
DATE: 10/16/19 | SCORER: JFW | COMMENTS: Intermittent

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
Located in existing T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	0%
☑	BOULDER (>256 mm) [16 pts]	20%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	50%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	5%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 70%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **28** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **5**

HHEI Metric Points
Substrate Max = 40: **33**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **1**

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **7**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Left Fork Camp Creek Distance from Evaluated Stream 0.42 mile

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

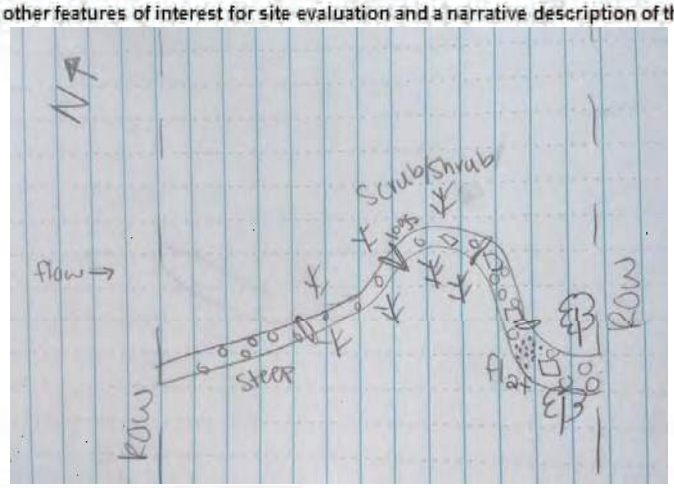
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)

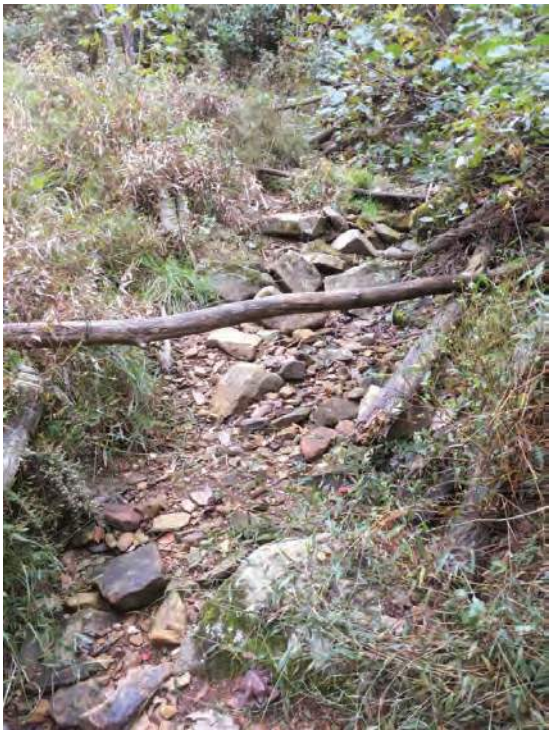
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW



Crosses existing T-Line ROW.

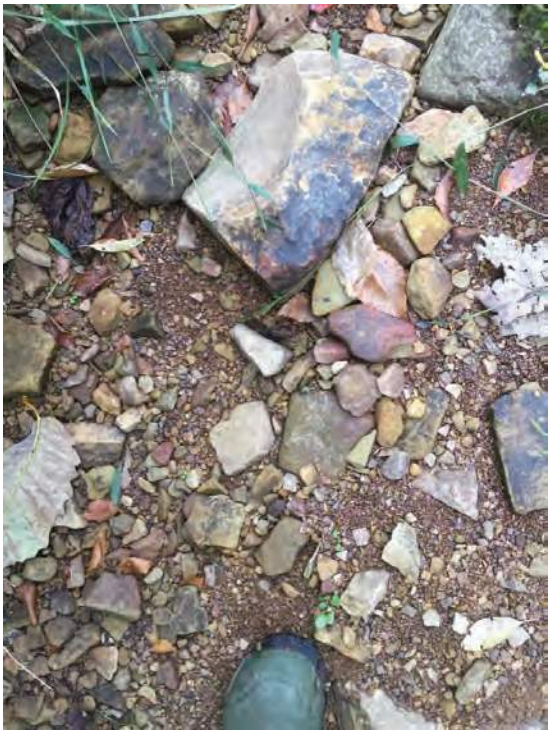
Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101619-03a
SITE NUMBER: HM-124a | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0007
LENGTH OF STREAM REACH (ft): 200 | LAT: 38.98184 | LONG: -83.17450 | RIVER MILE:
DATE: 10/16/19 | SCORER: JFW | COMMENTS: Ephemeral

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
infrequently maintained T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	40%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☑	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	20%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **3**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Left Fork Camp Creek Distance from Evaluated Stream 0.22 miles

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

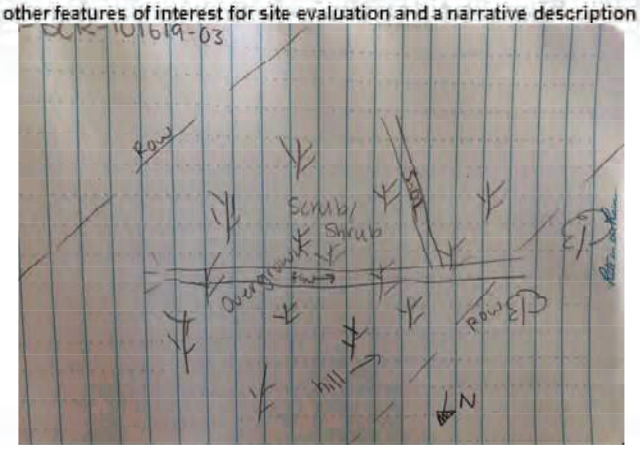
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Small ephemeral stream heavily covered by bramble, diagonally running down ROW on a hill.

Site Photos



substrate



upstream / N



downstream / S

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101619-03b
SITE NUMBER: HM-124b | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0007
LENGTH OF STREAM REACH (ft): 200 | LAT: 38.98184 | LONG: -83.19000 | RIVER MILE:
DATE: 10/16/19 | SCORER: JFW | COMMENTS: Ephemeral, side channel that connects out of ROW

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
infrequently maintained T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	40%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☑	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	20%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Left Fork Camp Creek Distance from Evaluated Stream 0.22 mile

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

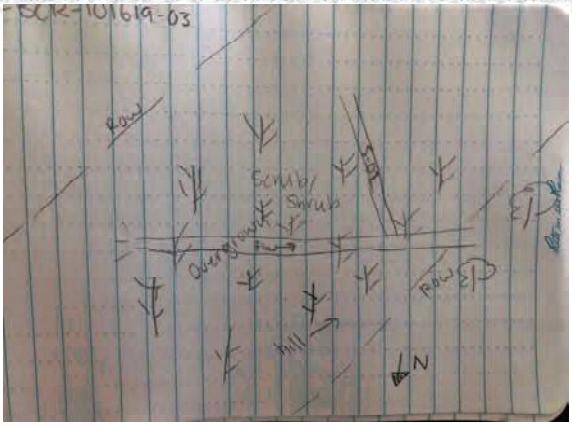
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Small ephemeral spur near edge of ROW connecting to main channel just outside of ROW

Site Photos



substrate



upstream / N



downstream / S

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **27**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101619-02

SITE NUMBER: HM-125 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0005

LENGTH OF STREAM REACH (ft): 124 | LAT: 38.98188 | LONG: -83.18938 | RIVER MILE:

DATE: 10/16/19 | SCORER: BCR | COMMENTS: Ephemeral

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

Riparian cleared

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	40%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **19** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points

Substrate Max = 40: **22**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **1**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Left Fork Camp Creek Distance from Evaluated Stream 0.24 mile

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

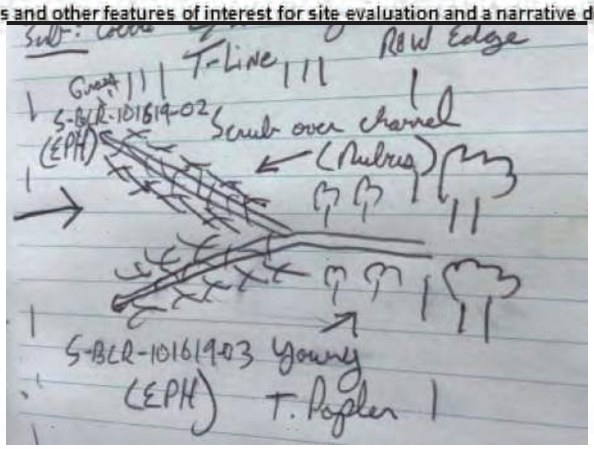
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Ephemeral channel within existing t-line ROW. Channel obscured by thorny vegetation.

Site Photos



Upstream / NNE



Downstream / SSW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 51

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101619-01

SITE NUMBER: HM-126 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.260

LENGTH OF STREAM REACH (ft): 268 | LAT: 38.97895 | LONG: -83.18421 | RIVER MILE:

DATE: 10/16/19 | SCORER: JFW | COMMENTS: Intermittent

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

Crosses existing T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **26**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 8

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☑ Flat (0.5 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: Left Fork Camp Creek Distance from Evaluated Stream 0.31 miles

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

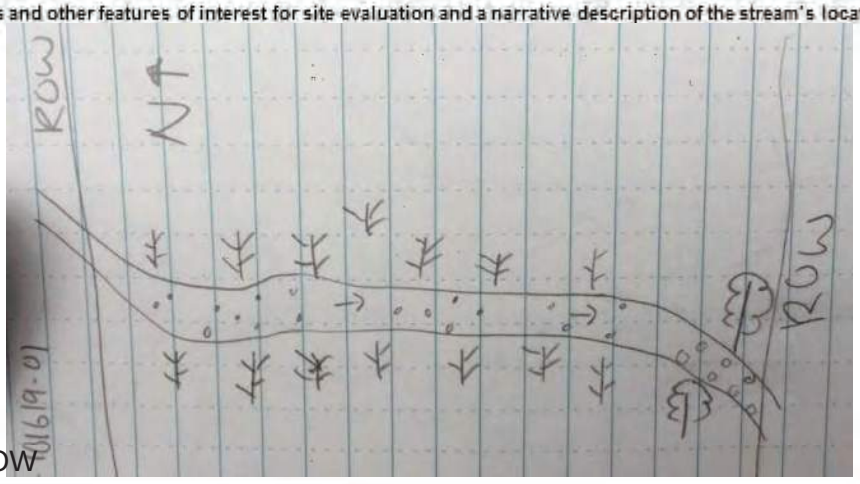
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Crosses existing T-Line ROW

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 75

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101719-01

SITE NUMBER: HM-131 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.380

LENGTH OF STREAM REACH (ft): 335 | LAT: 38.95842 | LONG: -83.14478 | RIVER MILE:

DATE: 10/17/19 | SCORER: JFW | COMMENTS: Intermittent

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

Located in existing T-Line ROW, crossed by an ATV path.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	25%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☑ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 10

Pool Depth Max = 30: **30**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 7.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Rocky Fork Distance from Evaluated Stream 0

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Pike Township/City: Camp Creek

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

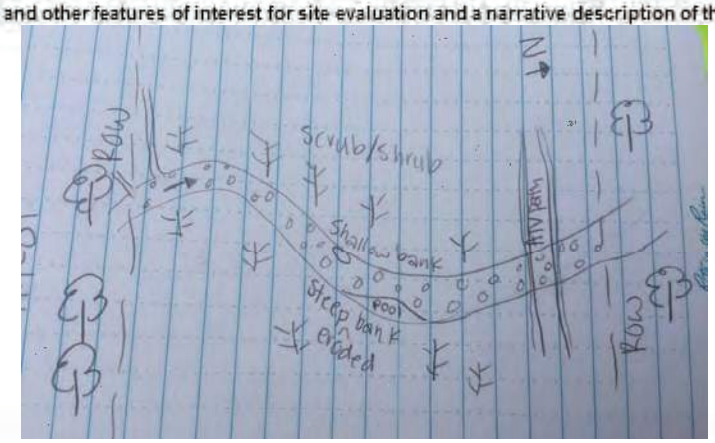
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Located in existing T-Line ROW, crosses an ATV path.

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **30**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101819-03

SITE NUMBER: HM-133 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.002

LENGTH OF STREAM REACH (ft): 404 | LAT: 38.94592 | LONG: -83.12568 | RIVER MILE:

DATE: 10/18/19 | SCORER: JFW | COMMENTS: Ephemeral

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 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☑	COBBLE (65-256 mm) [12 pts]	30%	☐☐	CLAY or HARDPAN [0 pt]	10%
☑☐	GRAVEL (2-64 mm) [9 pts]	50%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points

Substrate Max = 40: **25**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **3**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☑ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Bear Creek Distance from Evaluated Stream 0.32 mile

☐ 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: Rarden NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

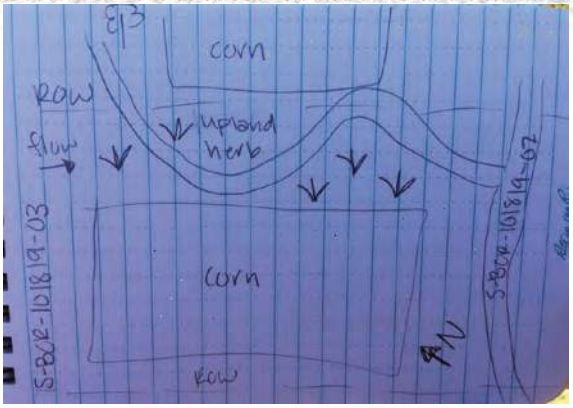
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Located between corn fields, intersects existing T-Line ROW to the north.

Site Photos



upstream / NNW



downstream / SSE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 49

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-BCR-101819-02
SITE NUMBER: HM-134 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 1.780
LENGTH OF STREAM REACH (ft): 241 | LAT: 38.94496 | LONG: -83.12433 | RIVER MILE:
DATE: 10/18/19 | SCORER: JFW | COMMENTS: Intermittent

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
Crosses existing T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **24**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 8

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☑	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Bear Creek Distance from Evaluated Stream 0.32 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/16/19 Quantity: 0.38

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

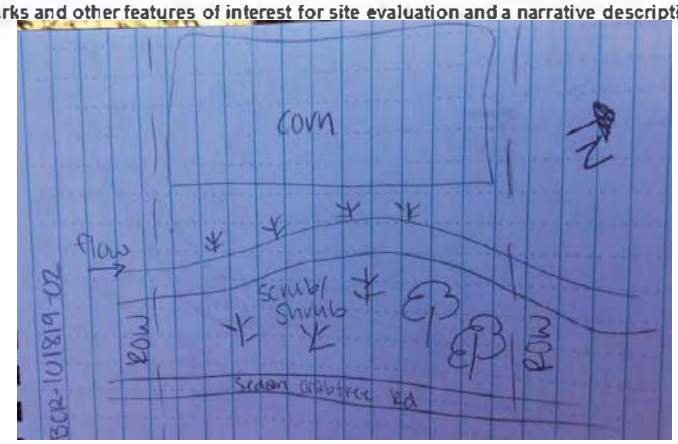
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Crosses existing T-Line ROW and parallels Sedan Crabtree Road.

Site Photos



upstream / S



downstream / N



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 35

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-DCS-102219-02

SITE NUMBER: HM-136 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.040

LENGTH OF STREAM REACH (ft): 200 | LAT: 38.92518 | LONG: -83.09606 | RIVER MILE:

DATE: 10/22/19 | SCORER: DCS | COMMENTS: Stream HM-137 flows into this ephemeral 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

in T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	60%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 70%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1.5

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Very steep

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Bear Creek Distance from Evaluated Stream 0.91 mile

☐ 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: Wakefield, ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: US, DS, sub

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

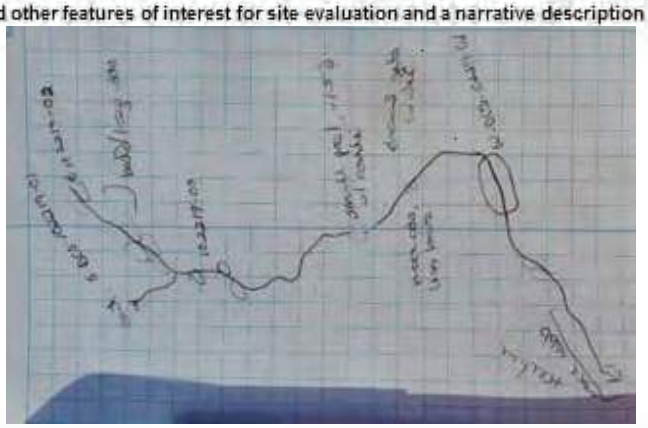
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

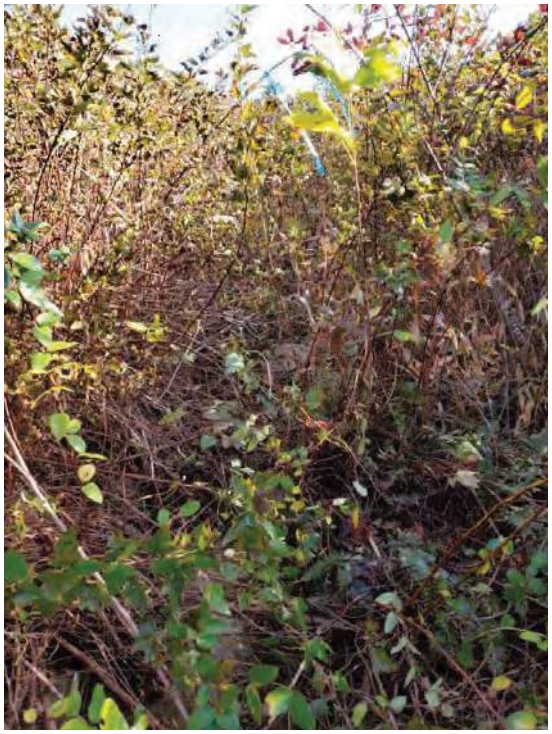
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

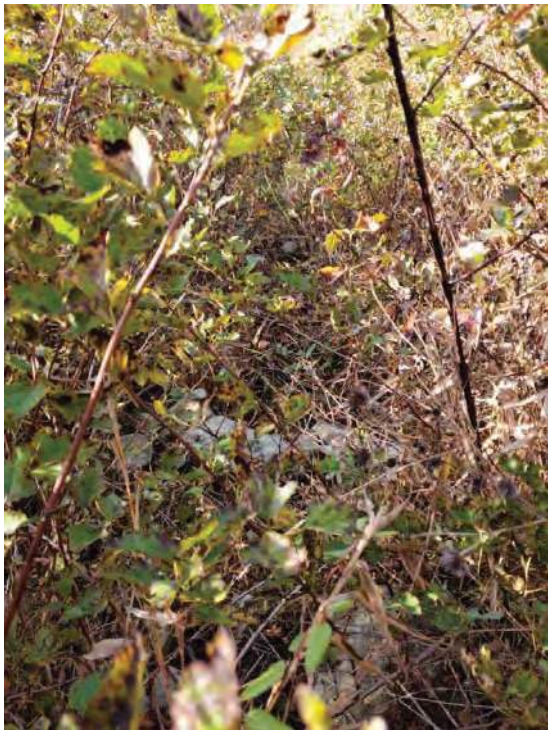


receives flow from another stream

Site Photos



upstream / SE



downstream / NW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **21**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-DCS-102219-01

SITE NUMBER: HM-137 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.006

LENGTH OF STREAM REACH (ft): 547 | LAT: 38.92515 | LONG: -83.09595 | RIVER MILE:

DATE: 10/22/19 | SCORER: DCS | COMMENTS: ephemeral

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

Within T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	5%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	30%	☐☑	CLAY or HARDPAN [0 pt]	40%
☐☐	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	0%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **12** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points

Substrate Max = 40: **16**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: small pockets of moist channel | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **1.5**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank)

L	R	
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☑	☑	Narrow <5m
☐	☐	None

FLOODPLAIN QUALITY (Most Predominant per Bank)

L	R		L	R	
☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Channel obscrued in areas by vegetation.

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral Stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Bear Creek Distance from Evaluated Stream 1.03 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: Attached to form.

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

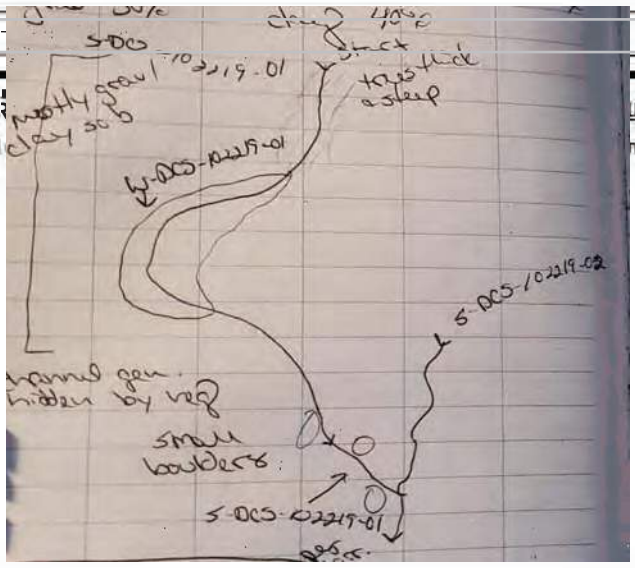
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

DRAWING AND NARRA ust be completed)

Include important landmarks and n of the stream's location



within T-line ROW, old field vegetation and scrub/shurb on both banks

Site Photos



upstream / SE



downstream / NW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **21**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-DCS-102119-03

SITE NUMBER: HM-138 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 74 | LAT: 38.92237 | LONG: -83.09241 | RIVER MILE:

DATE: 10/21/19 | SCORER: DCS | COMMENTS: Ephemeral

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

in active T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	30%	☐☑	CLAY or HARDPAN [0 pt]	40%
☐☐	GRAVEL (2-64 mm) [9 pts]	20%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	0%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **16**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☑	☑	Narrow <5m
☐	☐	None

FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	
☐	☐	Mature Forest, Wetland
☑	☑	Immature Forest, Shrub or Old Field
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture
☐	☐	Conservation Tillage
☐	☐	Urban or Industrial
☐	☐	Open Pasture, Row Crop
☐	☐	Mining or Construction

COMMENTS: Forested off ROW

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Bear Creek Distance from Evaluated Stream 1.24

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/19 Quantity: 0.08

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 60%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

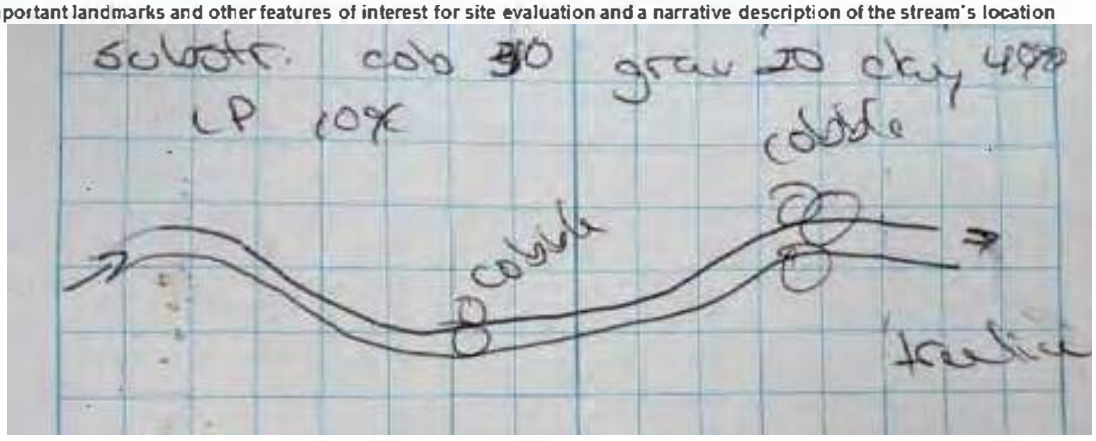
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within T-Line ROW, old field and scrubby vegetation on both banks.

Site Photos



upstream / NE



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **11**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-DCS-102119-02

SITE NUMBER: HM-139 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 20 | LAT: 38.92188 | LONG: -83.09183 | RIVER MILE:

DATE: 10/21/19 | SCORER: DCS | COMMENTS: channel widens in woods to south, then narrows

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 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☑☐	LEAF PACK/WOODY DEBRIS [3 pts]	30%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	0%	☐☑	CLAY or HARDPAN [0 pt]	60%
☐☐	GRAVEL (2-64 mm) [9 pts]	10%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	0%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **3** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points

Substrate Max = 40: **6**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **1**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R	
☑	☑	Wide >10m	☑☑	Mature Forest, Wetland	☐☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐☐	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐	☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐	☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Bear Creek Distance from Evaluated Stream 1.23 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/19 Quantity: 0.08

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 0%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

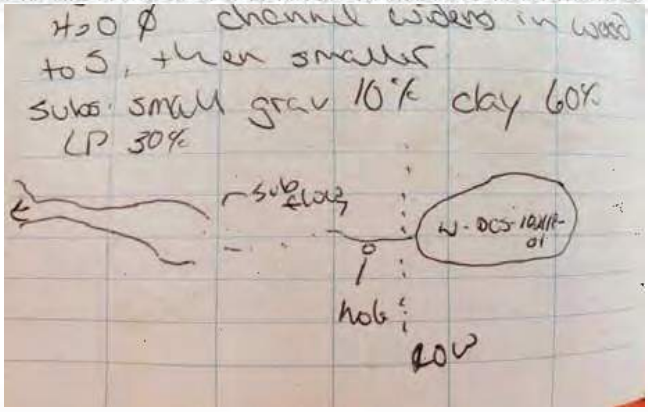
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Flows from wetland into woods, partially within active T-line ROW

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 63

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV; **S-DCS-102119-01**

SITE NUMBER: Stream HM-140 | RIVER BASIN: 050600021602 | RIVER CODE: | DRAINAGE AREA (mi²): 0.780

LENGTH OF STREAM REACH (ft): 214 | LAT: 38.91931 | LONG: -83.08767 | RIVER MILE:

DATE: 10/21/19 | SCORER: dcs | COMMENTS: intermittent stream, bedrock substrate

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 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☑ ☐	BEDROCK [16 pts]	80%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 80%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **19** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40: **23**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: channel filled with fallen leaves | MAXIMUM POOL DEPTH (inches): 4.00

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☑ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: bank widens downstream | AVERAGE BANKFULL WIDTH (feet): 12

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: thick scrub-shrub vegetation on both banks

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent with some flow

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Bear Creek Distance from Evaluated Stream 0.68 mile

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/20/19 Quantity: 0.08

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

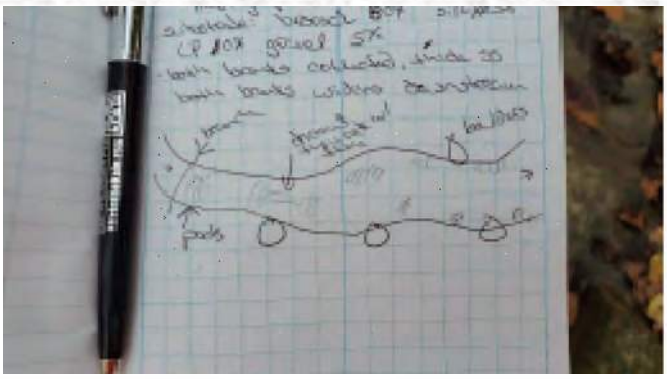
Aquatic Macroinvertebrates Observed? (Y/N) Y Species observed (if known): _____

Comments Regarding Biology: _____

water striders 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

scrub-shrub vegetation on both banks, in active T-line ROW

Site Photos



upstream / W-SW



downstream / E-NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 60

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV; **S-DCS-102319-01**

SITE NUMBER: Stream HM-141 | RIVER BASIN: 050600021602 | RIVER CODE: | DRAINAGE AREA (mi²): 0.370

LENGTH OF STREAM REACH (ft): 438 | LAT: 38.91643 | LONG: -83.08365 | RIVER MILE:

DATE: 10/23/19 | SCORER: dcs | COMMENTS: intermittent stream flow

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

in T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	45%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40
25
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: few pools | 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):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **7**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☑	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Bear Creek Distance from Evaluated Stream 0.87 mile

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 65%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

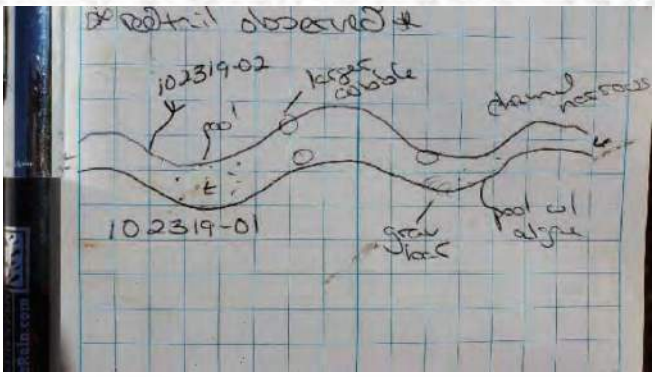
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Flow

within active T-line ROW; generally old field and scrub-shrub vegetation on both banks

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 54

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV; **S-DCS-102319-02**

SITE NUMBER: Stream HM-142 | RIVER BASIN: 050600021602 | RIVER CODE: | DRAINAGE AREA (mi²): 0.048

LENGTH OF STREAM REACH (ft): 543 | LAT: 38.91660 | LONG: -83.08349 | RIVER MILE:

DATE: 10/23/19 | SCORER: dcs | COMMENTS: flows into Stream HM-141; 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

within existing T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	60%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points — Substrate Max = 40: 24 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: restricted, some water outside of pools | MAXIMUM POOL DEPTH (inches): **2.5**

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **3.5**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☐	☐	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☑	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☑ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Bear Creek Distance from Evaluated Stream 0.88 mile

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 60%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

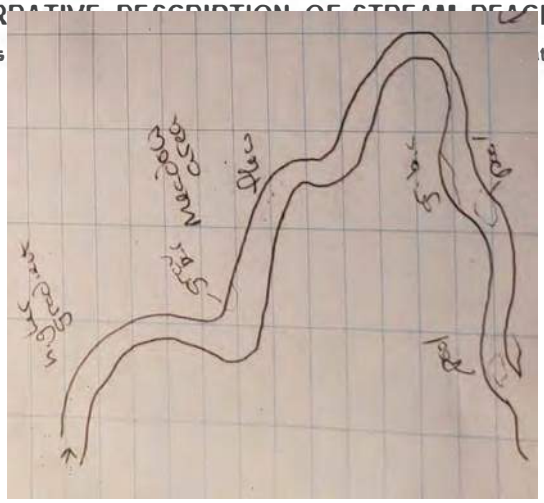
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)

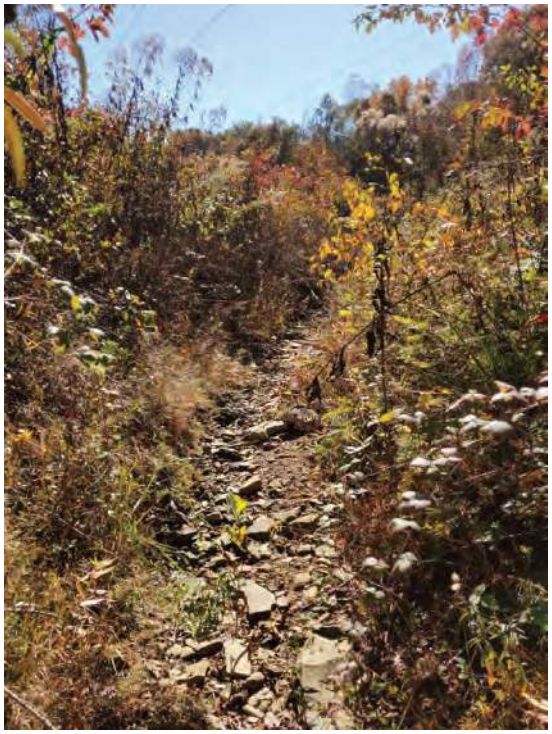
Include important landmarks ... tive description of the stream's location

FLOW ➔



stream enters ROW from woods, within ROW banks generally herbaceous and scrub/shrub vegetation

Site Photos



upstream / S



downstream / N



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 56

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV; **S-DCS-102319-03**

SITE NUMBER: Stream HM-144 | RIVER BASIN: 050600021603 | RIVER CODE: | DRAINAGE AREA (mi²): 0.058

LENGTH OF STREAM REACH (ft): 200 | LAT: 38.90751 | LONG: -83.07175 | RIVER MILE:

DATE: 10/23/19 | SCORER: dcs | COMMENTS: ephemeral, slopes steep and eroding

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

in T-line ROW, slopes steep and eroding

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	5%	☐ ☐	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **5**

HHEI Metric Points
Substrate Max = 40: **26**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: small areas moist | MAXIMUM POOL DEPTH (inches): **3**

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **4**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☐	☐	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: riparian area is very steep

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Big Run Distance from Evaluated Stream 1200 feet

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

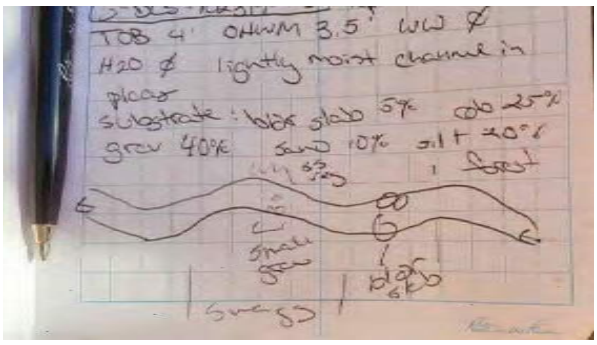
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



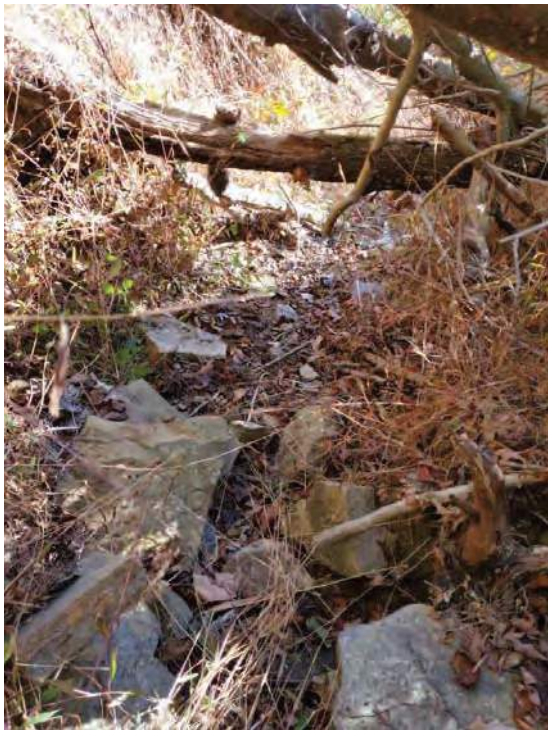
Flow

within T-Line ROW, stream banks are composed of scrub-shrub vegetation

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 20

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV; **S-DCS-102319-04**

SITE NUMBER: Stream HM-145 | RIVER BASIN: 050600021603 | RIVER CODE: | DRAINAGE AREA (mi²): 0.016

LENGTH OF STREAM REACH (ft): 244 | LAT: 38.90551 | LONG: -83.06977 | RIVER MILE:

DATE: 10/23/19 | SCORER: dcs | COMMENTS: ephemeral

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

in T-line ROW, banks eroding

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☐ ☑	CLAY or HARDPAN [0 pt]	20%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **9** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **6**

HHEI Metric Points
Substrate Max = 40: **15**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **2.50**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: steep, eroding banks

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Big Run Distance from Evaluated Stream 700 ft

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

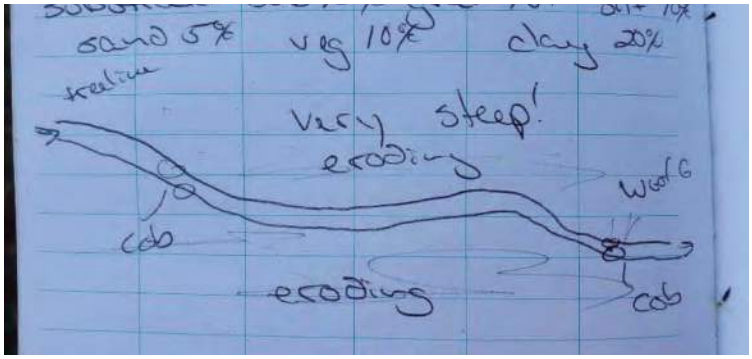
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



banks very steep, herbaceous old field vegetation on banks

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **17**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV; **S-DCS-102319-05**

SITE NUMBER: Stream HM-146 | RIVER BASIN: 050600021603 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 83 | LAT: 38.90424 | LONG: -83.06837 | RIVER MILE:

DATE: 10/23/19 | SCORER: dcs | COMMENTS: ephemeral, very steep

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

within active T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	60%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **9** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points

Substrate Max = 40: **12**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **1.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R	
☐	☐	Wide >10m	☐ ☐	Mature Forest, Wetland	☐ ☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑ ☑	Immature Forest, Shrub or Old Field	☐ ☐	Urban or Industrial
☑	☑	Narrow <5m	☐ ☐	Residential, Park, New Field	☐ ☐	Open Pasture, Row Crop
☐	☐	None	☐ ☐	Fenced Pasture	☐ ☐	Mining or Construction

COMMENTS: very steep banks which are actively eroding

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>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: Big Run Distance from Evaluated Stream 257 ft

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

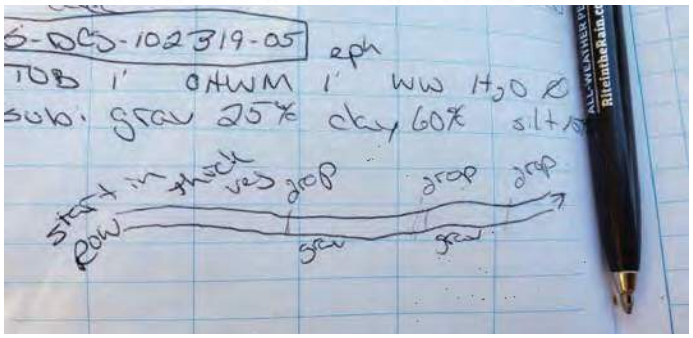
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream starts in T-line ROW, flows into woods, scrub-shrub in ROW

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 18

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV ; **S-DCS-102319-06**

SITE NUMBER: Stream HM-147 | RIVER BASIN: 050600021603 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 168 | LAT: 38.90411 | LONG: -83.06811 | RIVER MILE:

DATE: 10/23/19 | SCORER: dcs | COMMENTS: very steep channel, ephemeral 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

steep stream within active T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☐ ☑	CLAY or HARDPAN [0 pt]	60%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **9** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points
Substrate Max = 40: **13**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **1.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☑ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Big Run Distance from Evaluated Stream 285 ft

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/22/19 Quantity: 0.46

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 5%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts:

stream flows into S-102319-05 off ROW

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

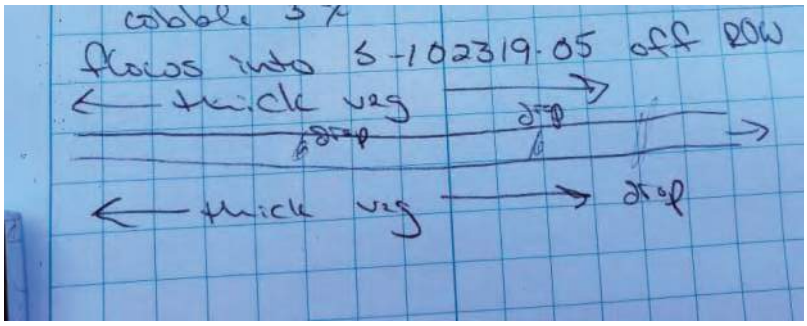
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



steep ephemeral stream; thick herbaceous vegetation on banks

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **12**

SITE NAME/LOCATION AEP Hillsboro - Millbrook Park 138kV ; **S-MJA-110119-03**

SITE NUMBER Stream HM-148 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) 0.001

LENGTH OF STREAM REACH (ft) 401 LAT 38.90355 LONG -83.06700 RIVER MILE _____

DATE 11/01/19 SCORER MJA COMMENTS ephemeral 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

stream within infrequently maintained transmission line ROW, ATV access crossing

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS **[16 pts]**	0%	☐ ☑	SILT **[3 pt]**	35%
☐ ☐	BOULDER (>256 mm) **[16 pts]**	0%	☐ ☐	LEAF PACK/WOODY DEBRIS **[3 pts]**	5%
☐ ☐	BEDROCK **[16 pts]**	0%	☐ ☐	FINE DETRITUS **[3 pts]**	0%
☐ ☐	COBBLE (65-256 mm) **[12 pts]**	0%	☑ ☐	CLAY or HARDPAN **[0 pt]**	55%
☐ ☐	GRAVEL (2-64 mm) **[9 pts]**	0%	☐ ☐	MUCK **[0 pts]**	0%
☐ ☐	SAND (<2 mm) **[6 pts]**	5%	☐ ☐	ARTIFICIAL **[3 pts]**	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** (B) 4

HHEI Metric Points

Substrate Max = 40

7

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters **[20 pts]**	☐ 5 cm - 10 cm **[15 pts]**
☐ > 22.5 - 30 cm **[30 pts]**	☐ < 5 cm **[5pts]**
☐ > 10 - 22.5 cm **[25 pts]**	☑ NO WATER OR MOIST CHANNEL **[0pts]**

COMMENTS _____ **MAXIMUM POOL DEPTH** (inches) : 0

Pool Depth Max = 30

0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') **[30 pts]**	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") **[15 pts]**
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') **[25 pts]**	☑ ≤ 1.0 m (≤ 3' 3") **[5 pts]**
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") **[20 pts]**	

COMMENTS _____ **AVERAGE BANKFULL WIDTH** (feet) 2

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☑	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Big Run Distance from Evaluated Stream 0.02 mi

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

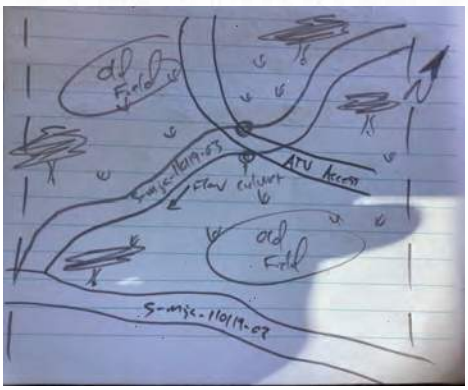
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream within infrequently maintained transmission line ROW; ATV access crossing

Site Photos



Downstream - South



Upstream - North



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 11

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV; **S-MJA-110119-01**

SITE NUMBER: Stream HM-149 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 81 | LAT: 38.90268 | LONG: -83.06641 | RIVER MILE:

DATE: 11/01/19 | SCORER: MJA | COMMENTS: ephemeral 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

flows adjacent to roadside under t-line

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	21%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	60%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	19%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **6**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.00

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☑ Wide >10m	☐	☑ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☑	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☑	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: road/residential on left bank

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Big Run Distance from Evaluated Stream 20 ft

☐ 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: Wakefield, Ohio NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 11/01/19 Quantity: 0.81

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



drawing depicts S-MJA-110119-01 flowing into S-MJA-110119-02

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **24**

SITE NAME/LOCATION AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-04

SITE NUMBER HM-151 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) <0.001

LENGTH OF STREAM REACH (ft) 142 LAT 38.90187 LONG -83.06519 RIVER MILE _____

DATE 11/01/19 SCORER MJA COMMENTS ephemeral

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

stream within eroded hillside, ATV disturbance

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	10%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	5%	☑☐	CLAY or HARDPAN [0 pt]	50%
☐☑	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **14**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS isolated pools. recent rain, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Big Run Distance from Evaluated Stream 0.01 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

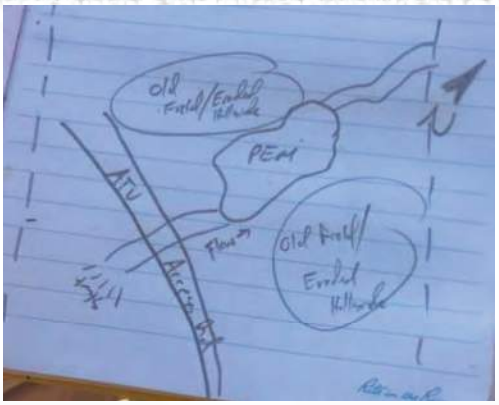
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream located in eroded hillside within the existing T-line ROW

Site Photos



Downstream - North



Upstream - South



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 57

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-05

SITE NUMBER: HM-152 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.140

LENGTH OF STREAM REACH (ft): 211 | LAT: 38.90107 | LONG: -83.06407 | RIVER MILE:

DATE: 11/01/19 | SCORER: MJA | COMMENTS: intermittent

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

eroded hillside, adjacent to ATV access rd

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	15%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	45%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **27**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3.5

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Big Run Distance from Evaluated Stream 0.05 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

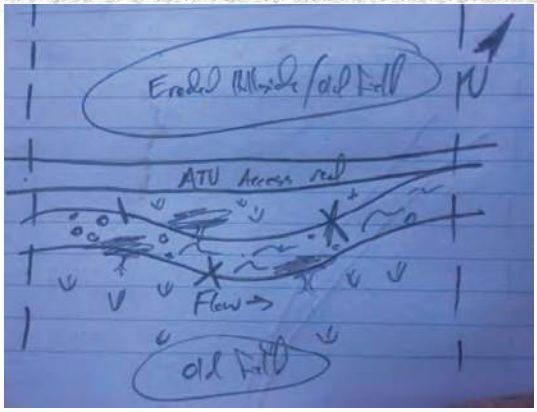
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

located on an eroded hillside within the existing T-line ROW

Site Photos



Upstream / S



Downstream / N



Subtrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **22**

SITE NAME/LOCATION AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-06

SITE NUMBER HM-153 RIVER BASIN 05060002 RIVER CODE _____ DRAINAGE AREA (mi²) <0.01

LENGTH OF STREAM REACH (ft) 285 LAT 38.90017 LONG -83.06340 RIVER MILE _____

DATE 11/01/19 SCORER MJA COMMENTS ephemeral

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

stream along eroded hillside

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☑	CLAY or HARDPAN [0 pt]	30%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	15%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **17**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Big Run Distance from Evaluated Stream 0.1 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 15%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

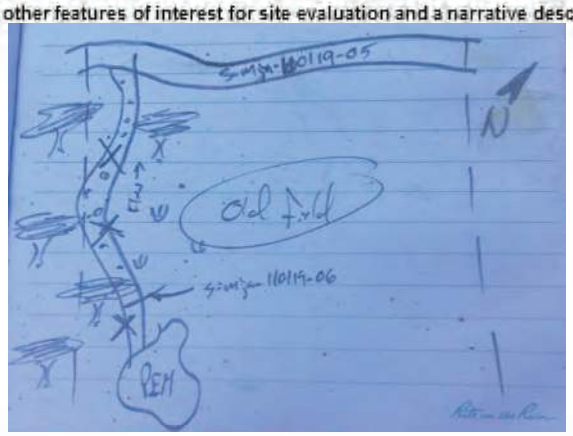
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



stream along eroded hillside

Site Photos

upstream / SE
photo taken 01-15-2020



downstream / NW
photo taken 01-15-2020



substrate
photo taken 01-15-2020



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **28**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-07

SITE NUMBER: HM-154 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 89 | LAT: 38.89791 | LONG: -83.05970 | RIVER MILE:

DATE: 11/01/19 | SCORER: MJA | COMMENTS: ephemeral

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

flows from old ATV access road

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	40%	☐☑	CLAY or HARDPAN [0 pt]	30%
☐☐	GRAVEL (2-64 mm) [9 pts]	15%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	5%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **18**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: trickle from recent rainfall, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Big Run Distance from Evaluated Stream 0.41 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

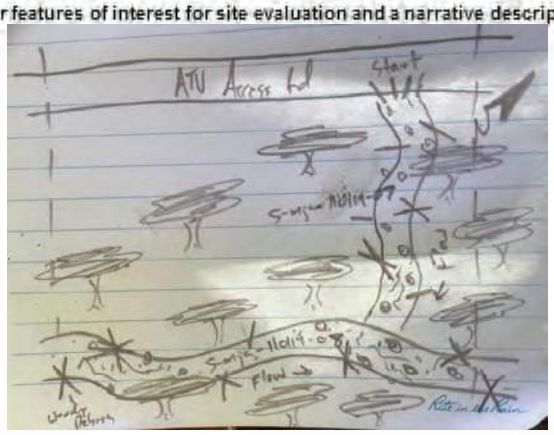
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

flows from old ATV access road

Site Photos



Upstream / W



Downstream / E



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 63

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-08

SITE NUMBER: HM-155 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.084

LENGTH OF STREAM REACH (ft): 259 | LAT: 38.89771 | LONG: -83.05963 | RIVER MILE:

DATE: 11/01/19 | SCORER: MJA | COMMENTS: intermittent

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

located in existing T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	35%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 45%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points
Substrate Max = 40: **28**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☑	☑ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Big Run Distance from Evaluated Stream 0.4 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

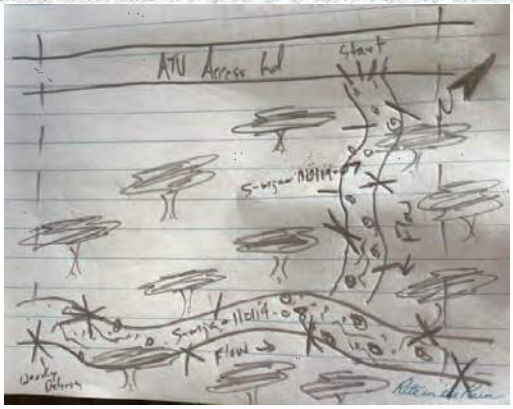
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



located in existing T-line ROW

Site Photos



Upstream - South



Downstream - North



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 44

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-09

SITE NUMBER: HM-156 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 105 | LAT: 38.89574 | LONG: -83.05617 | RIVER MILE:

DATE: 11/01/19 | SCORER: MJA | COMMENTS: ephemeral

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

infrequently maintained T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☑	BOULDER (>256 mm) [16 pts]	30%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	15%
☑ ☐	COBBLE (65-256 mm) [12 pts]	35%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	5%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 65%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **34**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☑ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: isolated pools

MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☐ Stream Flowing	☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: recent rains, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Slate Run Distance from Evaluated Stream 0.47 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

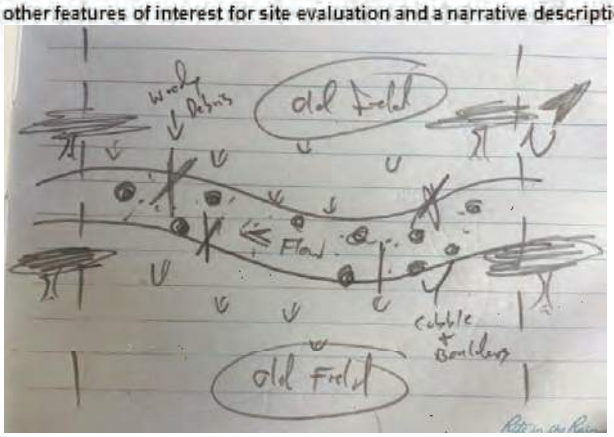
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

located in infrequently maintained T-line ROW, and flows through an old field

Site Photos



Upstream - NE



Downstream - SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 26

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-10

SITE NUMBER: HM-157 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 287 | LAT: 38.89211 | LONG: -83.04985 | RIVER MILE:

DATE: 11/01/19 | SCORER: MJA | COMMENTS: ephemeral

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

located in existing T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	10%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☑ ☐	CLAY or HARDPAN [0 pt]	30%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points

Substrate Max = 40: **16**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: isolated

MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: recent rains, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Slate Run Distance from Evaluated Stream 10 ft

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

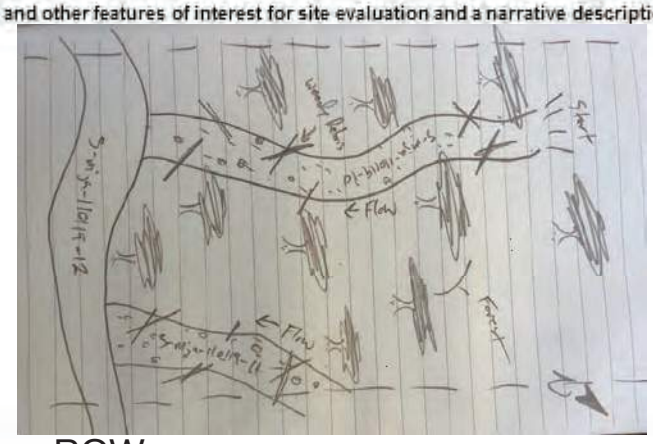
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

located in existing T-line ROW

Site Photos



Downstream - SE



Upstream - NW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 26

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-110119-11

SITE NUMBER: HM-158 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0013

LENGTH OF STREAM REACH (ft): 71 | LAT: 38.89184 | LONG: -83.04950 | RIVER MILE:

DATE: 11/01/19 | SCORER: MJA | COMMENTS: ephemeral

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

located in T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	10%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☑ ☐	CLAY or HARDPAN [0 pt]	30%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points
Substrate Max = 40: **16**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: isolated | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: recent rains, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☑ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Slate Run Distance from Evaluated Stream 10 ft

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/31/19 Quantity: 0.81

Photo-documentation Notes: upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

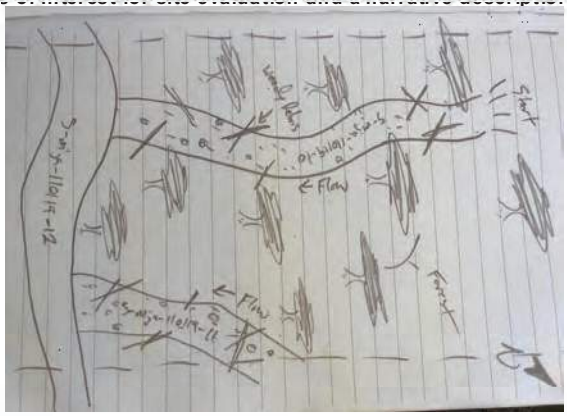
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

located in existing T-line ROW, flows into S-MJA-111019-12

Site Photos



Upstream / N



Downstream / S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 26

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103119-08
SITE NUMBER: HM-160 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.350
LENGTH OF STREAM REACH (ft): 104 | LAT: 38.89158 | LONG: -83.04938 | RIVER MILE:
DATE: 10/31/19 | SCORER: MJA | COMMENTS: Ephemeral

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
Flows adjacent to road

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	45%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **16**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☑ Wide >10m	☐	☑ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☐ Narrow <5m	☑	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Gravel road near left bank

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Raining, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Slate Run Distance from Evaluated Stream 0.02 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: MORGAN

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

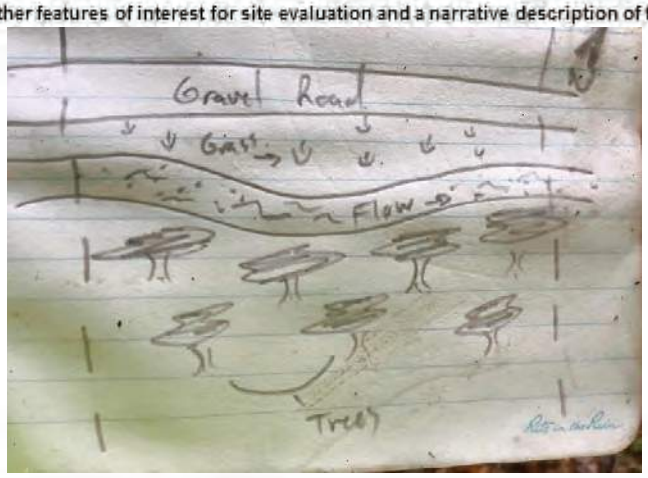
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Flows adjacent to road

Site Photos



upstream / SW



downstream / NE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 58

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103119-07

SITE NUMBER: HM-161 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.046

LENGTH OF STREAM REACH (ft): 257 | LAT: 38.88749 | LONG: -83.04541 | RIVER MILE:

DATE: 10/31/19 | SCORER: MJA | COMMENTS: Intermittent

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

Crosses existing T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	5%
☐☐	BOULDER (>256 mm) [16 pts]	5%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	35%	☐☐	CLAY or HARDPAN [0 pt]	20%
☐☑	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	5%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points

Substrate Max = 40: **28**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Raining, estimated intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Slate Run Distance from Evaluated Stream 0.29 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Crosses existing T-Line ROW

Site Photos



Upstream / W



Downstream / E



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 37

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103119-06

SITE NUMBER: HM-162 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.046

LENGTH OF STREAM REACH (ft): 262 | LAT: 38.88724 | LONG: -83.04519 | RIVER MILE:

DATE: 10/31/19 | SCORER: MJA | COMMENTS: Ephemeral

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

ATV crossing

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	20%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 6

HHEI Metric Points

Substrate Max = 40: **27**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Raining during visit

MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS:

AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Raining during visit, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☑	>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: Slate Run Distance from Evaluated Stream 0.38 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: MORGAN

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

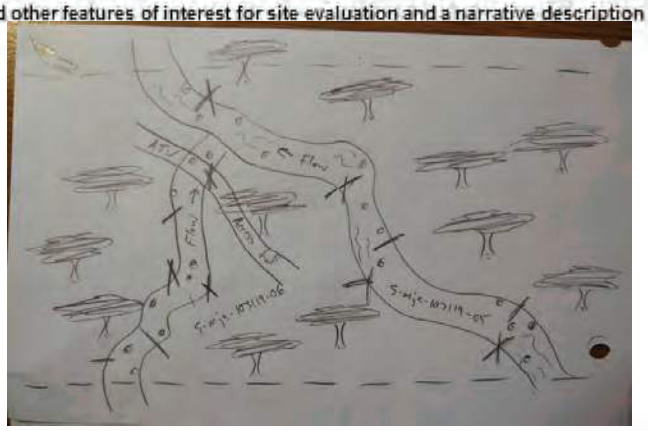
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Located in existing T-Line ROW, crossed by ATV trail

Site Photos



Upstream/ SW



Downstream/ NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 68

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103119-05

SITE NUMBER: HM-163 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.080

LENGTH OF STREAM REACH (ft): 416 | LAT: 38.88693 | LONG: -83.04470 | RIVER MILE:

DATE: 10/31/19 | SCORER: MJA | COMMENTS: Intermittent

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 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
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	15%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	35%	☐	CLAY or HARDPAN [0 pt]	5%
☑	GRAVEL (2-64 mm) [9 pts]	25%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points

Substrate Max = 40: **28**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 5

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Raining, estimated intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Slate Run Distance from Evaluated Stream 0.29 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: MORGAN

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

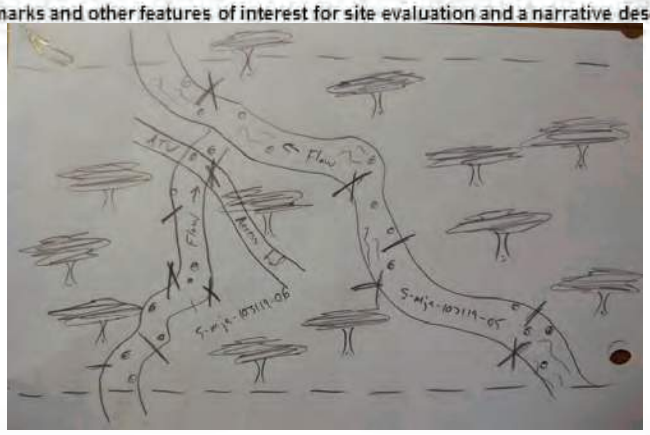
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Located in existing T-Line ROW.

Site Photos



Upstream/ S



Downstream/ N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 24

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103119-04
SITE NUMBER: HM-164 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0002
LENGTH OF STREAM REACH (ft): 189 | LAT: 38.88258 | LONG: -83.03993 | RIVER MILE:
DATE: 10/31/19 | SCORER: MJA | COMMENTS: Ephemeral

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
T-line ROW; ATV access road crossing

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	20%	☑ ☐	CLAY or HARDPAN [0 pt]	40%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **14**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Raining during visit | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Raining during visit, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Scioto River Distance from Evaluated Stream 1.38 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: MORGAN

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 97%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

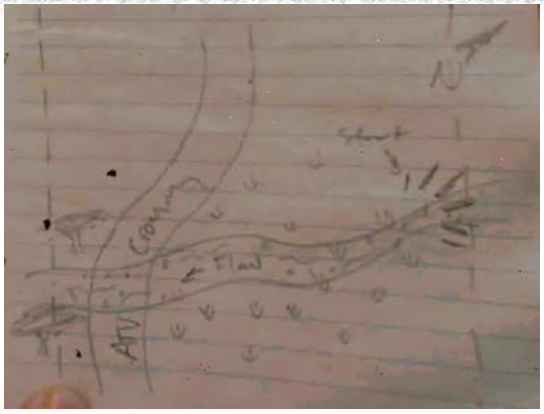
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Located in existing T-Line ROW, crossed by ATV trail.

Site Photos



upstream/ N



downstream/ S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 34

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103119-03

SITE NUMBER: HM-165 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.120

LENGTH OF STREAM REACH (ft): 421 | LAT: 38.88147 | LONG: -83.03843 | RIVER MILE:

DATE: 10/31/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line ROW. T-line/atv crossing

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☑	CLAY or HARDPAN [0 pt]	30%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	35%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: High water due to rainfall | MAXIMUM POOL DEPTH (inches): 3.5

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Flowing due to rainfall. Estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☑ >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: Scioto River Distance from Evaluated Stream 1.19 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: MORGAN

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

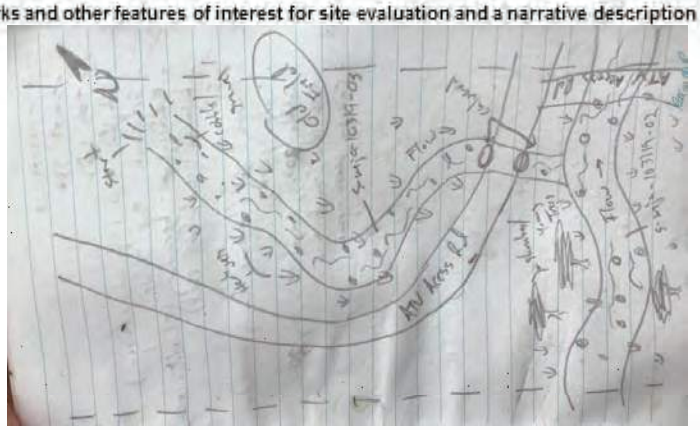
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Stream within infrequently maintained transmission line ROW. T-line/atv crossing

Site Photos



Upstream/ N



Downstream/ S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 56

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103119-02

SITE NUMBER: HM-166 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.130

LENGTH OF STREAM REACH (ft): 280 | LAT: 38.88109 | LONG: -83.03804 | RIVER MILE:

DATE: 10/31/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream within infrequently maintained transmission line ROW. Atv crossing within stream

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	20%
☐ ☑	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	35%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **26**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Currently raining, high water | MAXIMUM POOL DEPTH (inches): 6

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Scioto River Distance from Evaluated Stream 1.18 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: MORGAN

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 85%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

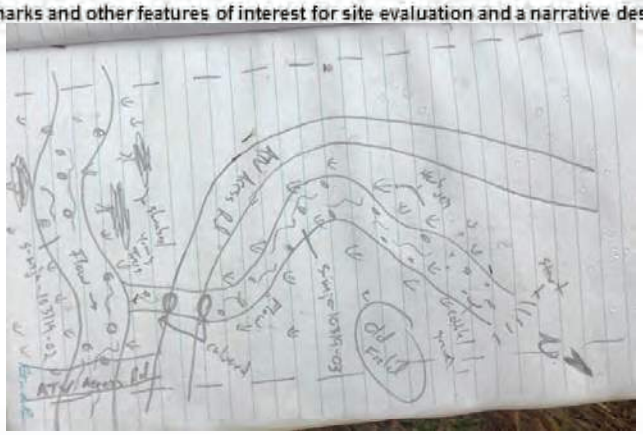
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Within infrequently maintained transmission line ROW. Atv crossing within stream

Site Photos



Upstream/ N



Downstream/ S



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 25

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102819-05

SITE NUMBER: HM-171 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.750

LENGTH OF STREAM REACH (ft): 181 | LAT: 38.86469 | LONG: -82.99216 | RIVER MILE:

DATE: 10/28/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream draining into wetland

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	60%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points

Substrate Max = 40: **5**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☑ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☑	☑ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Candy Run Distance from Evaluated Stream 0.6 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: VALLEY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

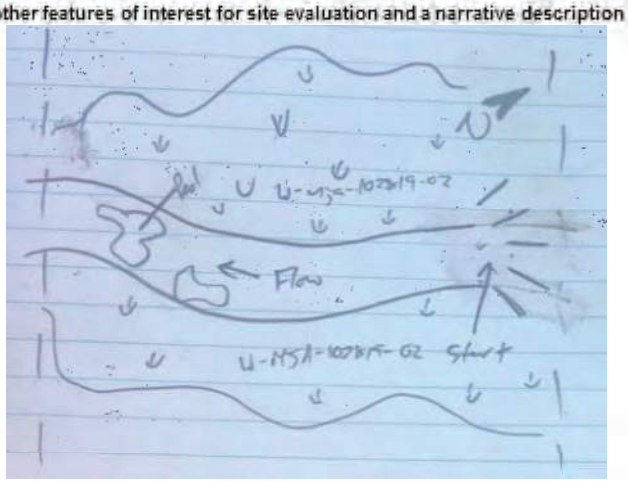
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream draining into wetland

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **36**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102819-04

SITE NUMBER: HM-172 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.038

LENGTH OF STREAM REACH (ft): 87 | LAT: 38.86447 | LONG: -82.99194 | RIVER MILE:

DATE: 10/28/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream draining into wetland from road

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	55%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	40%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40: **6**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 5

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Candy Run Distance from Evaluated Stream 0.6 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: VALLEY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

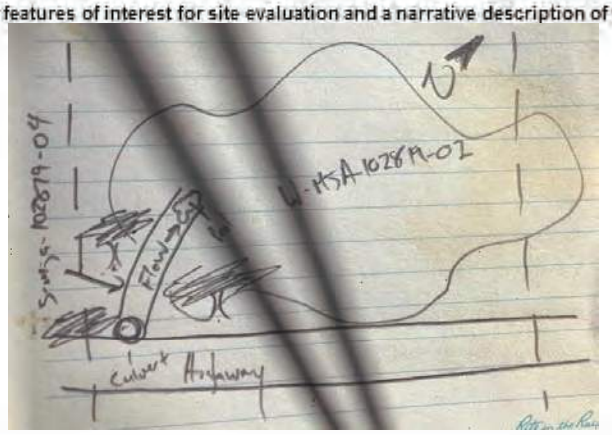
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream draining into wetland from road

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 15

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103019-06

SITE NUMBER: HM-173 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.016

LENGTH OF STREAM REACH (ft): 519 | LAT: 38.85956 | LONG: -82.98588 | RIVER MILE:

DATE: 10/30/19 | SCORER: MJA | COMMENTS: Ephemeral stream flows into wetland that may connect with larger stream during high rain events

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	70%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

(B) TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points

Substrate Max = 40: **5**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Raining during sampling, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Candy Run Distance from Evaluated Stream 0.03 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Valley

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

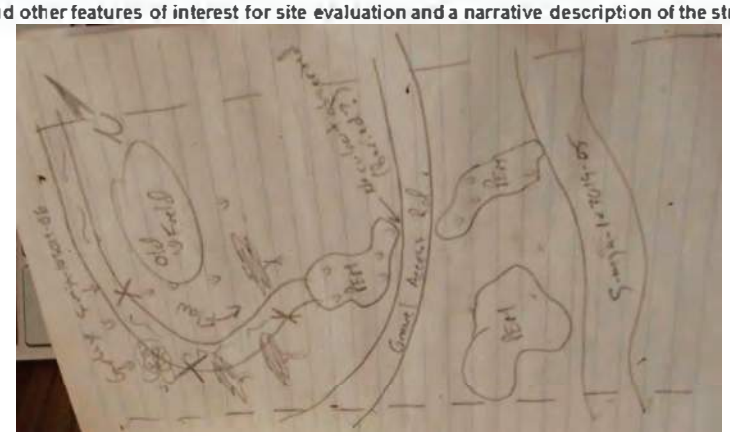
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream flows into wetland separated from rest via access road (no apparent culvert but might be buried)

Site Photos



upstream / NW



downstream / SE



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **24**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103019-04

SITE NUMBER: HM-175 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.023

LENGTH OF STREAM REACH (ft): 277 | LAT: 38.85392 | LONG: -82.98200 | RIVER MILE:

DATE: 10/30/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream within infrequently maintained transmission line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☐ ☑	CLAY or HARDPAN [0 pt]	20%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **9** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **5**

HHEI Metric Points

Substrate Max = 40: **14**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **2**

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **1.5**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☑ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Candy Run Distance from Evaluated Stream 0.42 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: VALLEY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 60%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

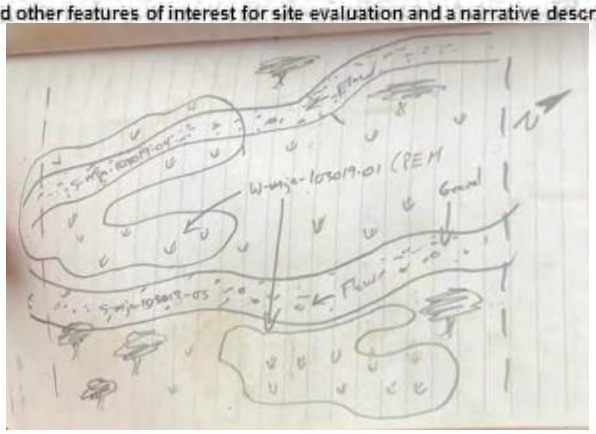
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Stream within infrequently maintained transmission line ROW

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 56

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103019-03

SITE NUMBER: HM-176 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.330

LENGTH OF STREAM REACH (ft): 207 | LAT: 38.85356 | LONG: -82.98178 | RIVER MILE:

DATE: 10/30/19 | SCORER: MJA | COMMENTS: Intermittent

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

Stream within infrequently maintained transmission line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	26%	☐ ☐	CLAY or HARDPAN [0 pt]	24%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 26%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **26**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 6

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☑	Mature Forest, Wetland	☐ ☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐ ☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐ ☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐ ☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Candy Run Distance from Evaluated Stream 0.42 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: VALLEY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

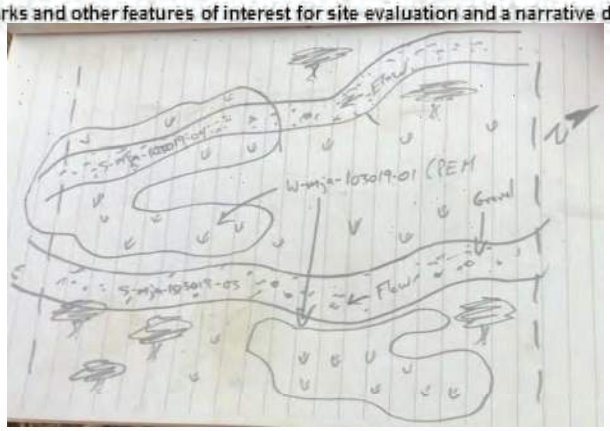
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Stream within infrequently maintained transmission line ROW

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 25

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103019-02

SITE NUMBER: HM-177 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.012

LENGTH OF STREAM REACH (ft): 249 | LAT: 38.85100 | LONG: -82.98004 | RIVER MILE:

DATE: 10/30/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	10%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	10%	☑☐	CLAY or HARDPAN [0 pt]	40%
☐☑	GRAVEL (2-64 mm) [9 pts]	30%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	5%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **15**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Recent rains, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☑ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Candy Run Distance from Evaluated Stream 0.74 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: VALLEY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

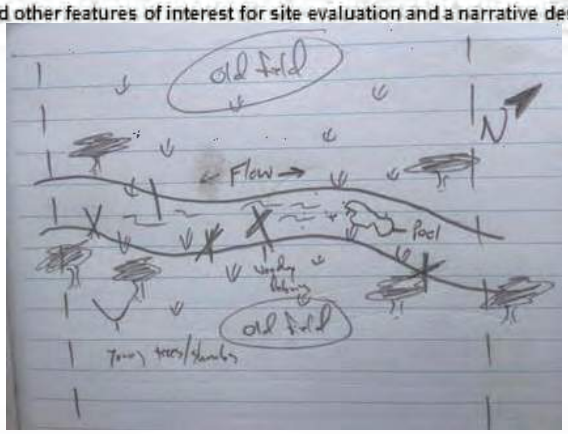
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream within infrequently maintained t-line ROW

Site Photos



Upstream / SW



Downstream / NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 52

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-103019-01

SITE NUMBER: HM-178 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 113 | LAT: 38.84143 | LONG: -82.97449 | RIVER MILE:

DATE: 10/30/19 | SCORER: MJA | COMMENTS: Intermittent

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

Flows along roadside; infrequently maintained t-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **15** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **7**

HHEI Metric Points

Substrate Max = 40: **22**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **5**

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **2.5**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☐ Narrow <5m	☑	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Road adjacent to left bank

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Scioto River Distance from Evaluated Stream 1.15 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: VALLEY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

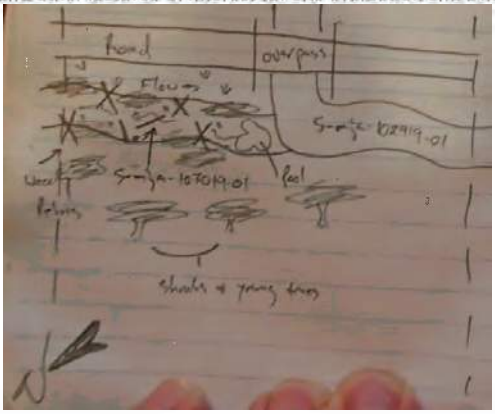
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Flows along roadside; infrequently maintained t-line ROW

Site Photos



upstream / W



downstream / E



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 44

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102919-02
SITE NUMBER: HM-180 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0002
LENGTH OF STREAM REACH (ft): 243 | LAT: 38.84021 | LONG: -82.97423 | RIVER MILE:
DATE: 10/29/19 | SCORER: MJA | COMMENTS: Ephemeral

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
Infrequently maintained t-line row; flows through residential

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☑ ☐	CLAY or HARDPAN [0 pt]	50%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **14**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Recent rains contributing to pool depth | MAXIMUM POOL DEPTH (inches): 4

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑ Narrow <5m	☑	☑ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Recent rain, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Scioto River Distance from Evaluated Stream 1.23 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: VALLEY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

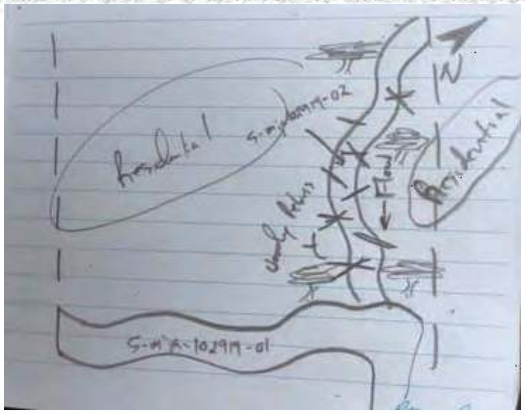
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream within infrequently maintained t-line row; flows through residential

Site Photos



Upstream / S



Downstream / N



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 38

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102919-03

SITE NUMBER: HM-181 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.005

LENGTH OF STREAM REACH (ft): 88 | LAT: 38.83321 | LONG: -82.96893 | RIVER MILE:

DATE: 10/29/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☑	BOULDER (>256 mm) [16 pts]	25%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 65%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **33**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Sturgeon Run Distance from Evaluated Stream 0.95 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: CLAY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

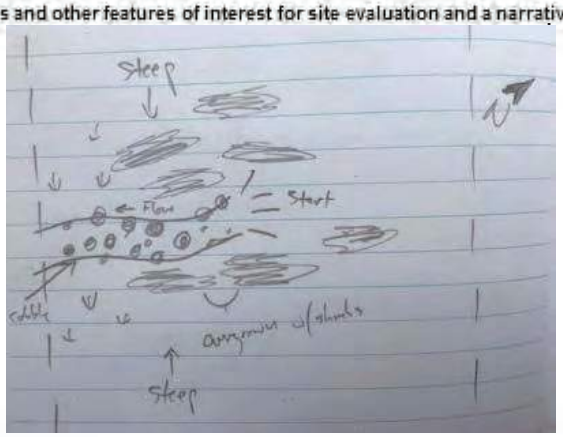
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream within infrequently maintained t-line row

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102919-04

SITE NUMBER: HM-182 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.008

LENGTH OF STREAM REACH (ft): 220 | LAT: 38.82982 | LONG: -82.96518 | RIVER MILE:

DATE: 10/29/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	5%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☑	CLAY or HARDPAN [0 pt]	25%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☑ 1.5	☐ 2.5	☐ >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: Sturgeon Run Distance from Evaluated Stream 1.11 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: CLAY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

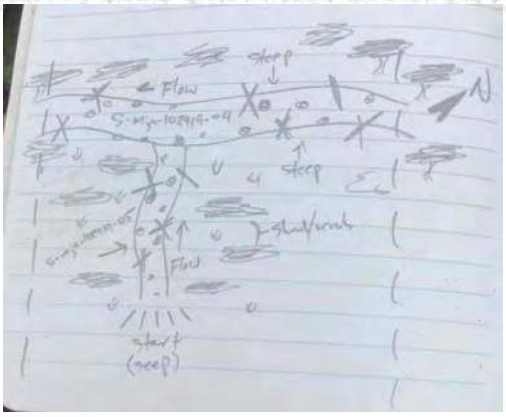
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream within infrequently maintained transmission line row

Site Photos



Upstream / NNE



Downstream / SSW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 36

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102919-05

SITE NUMBER: HM-183 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.0003

LENGTH OF STREAM REACH (ft): 93 | LAT: 38.82969 | LONG: -82.96520 | RIVER MILE:

DATE: 10/29/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	5%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **26**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐ ☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐ ☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐ ☐ Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐ ☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Trickling from spring; interpretted as an ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Sturgeon Run Distance from Evaluated Stream 1.11 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: CLAY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

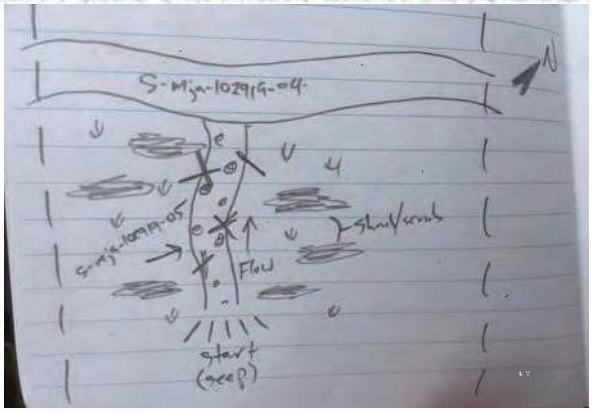
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream within infrequently maintained t-line row

Site Photos



upstream / SE



downstream / NW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 32

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102919-06

SITE NUMBER: HM-184 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.002

LENGTH OF STREAM REACH (ft): 231 | LAT: 38.82825 | LONG: -82.96381 | RIVER MILE:

DATE: 10/29/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Infrequently maintained t-line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	10%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points

Substrate Max = 40: **27**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Sturgeon Run Distance from Evaluated Stream 1.14 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: CLAY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

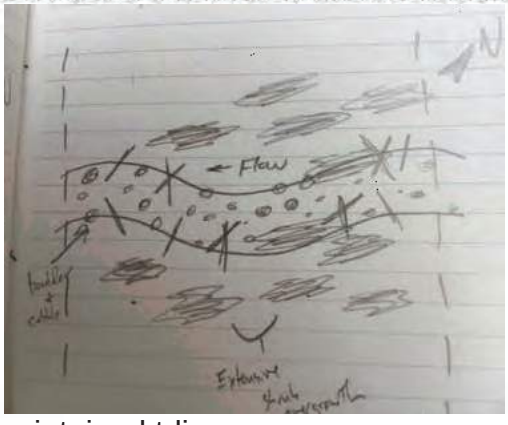
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



stream within infrequently maintained t-line row

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 28

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102919-07

SITE NUMBER: HM-185 | RIVER BASIN: 0506002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.004

LENGTH OF STREAM REACH (ft): 216 | LAT: 38.82585 | LONG: -82.96195 | RIVER MILE:

DATE: 10/29/19 | SCORER: MJA | COMMENTS: Ephemeral

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

Stream within infrequently maintained transmission line row

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☑	BOULDER (>256 mm) [16 pts]	25%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	5%	☑	CLAY or HARDPAN [0 pt]	35%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	15%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 16 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points
Substrate Max = 40: **23**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Sturgeon Run Distance from Evaluated Stream 1.3 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: CLAY

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 70%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

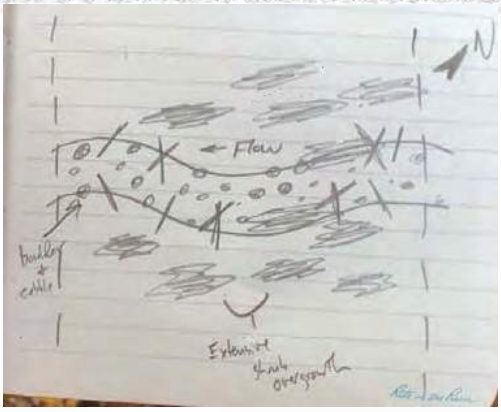
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream within infrequently maintained transmission line row

Site Photos



upstream / ENE



downstream / WSW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 29

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-MJA-102919-08

SITE NUMBER: HM-186 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.006

LENGTH OF STREAM REACH (ft): 245 | LAT: 38.82075 | LONG: -82.95843 | RIVER MILE:

DATE: 10/29/19 | SCORER: MJA | COMMENTS: Intermittent

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

Infrequently maintained t-line row

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	5%
☐ ☐	COBBLE (65-256 mm) [12 pts]	5%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points

Substrate Max = 40: **19**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☑ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☑ >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: Long Run Distance from Evaluated Stream 0.2 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

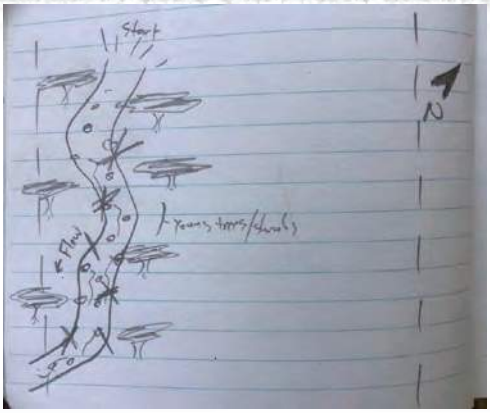
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream within infrequently maintained t-line ROW.

Site Photos



upstream / N



downstream / S



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **36**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103119-01

SITE NUMBER: HM-188 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.085

LENGTH OF STREAM REACH (ft): 339 | LAT: 38.81727 | LONG: -82.95536 | RIVER MILE:

DATE: 10/31/19 | SCORER: RW | COMMENTS: Ephemeral

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

Ditch culverted under Maple Benner Rd. Located in ag field and residential lawn.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	40%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	15%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **12** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **4**

HHEI Metric Points

Substrate Max = 40: **16**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **3**

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **2**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

* NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☑	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Long Run Distance from Evaluated Stream 0.6 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): Y Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

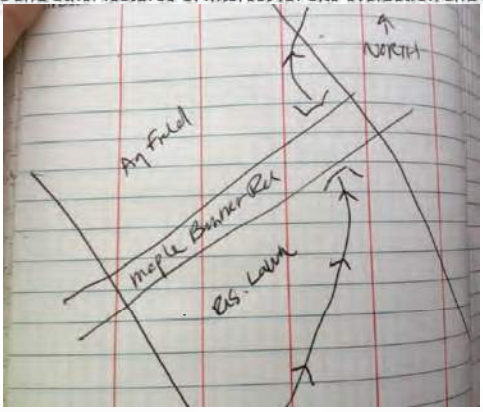
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Ditch culverted under Maple Benner Rd. Located in ag field and residential lawn.

Site Photos



upstream South



downstream North



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 45

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103119-02

SITE NUMBER: HM-189 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 117 | LAT: 38.81508 | LONG: -82.95406 | RIVER MILE:

DATE: 10/31/19 | SCORER: RW | COMMENTS: Ephemeral

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

Crosses T Line ROW; ROW cleared flows from access road

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Long Run Distance from Evaluated Stream 0.27 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): Y Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

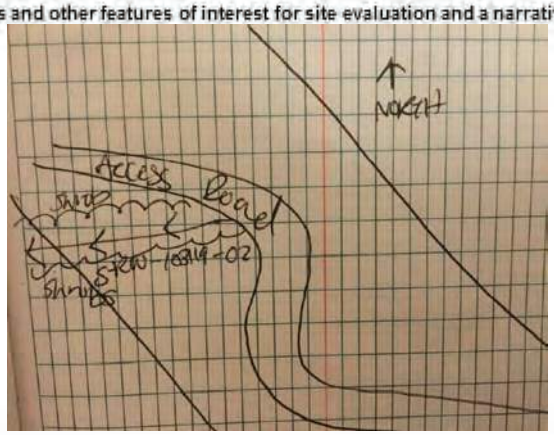
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Crosses T-Line ROW; ROW cleared flows from access road.

Site Photos

upstream / E
photo taken 01-15-2020



downstream / W
photo taken 01-15-2020



substrate
photo taken 01-15-2020



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **26**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103119-03

SITE NUMBER: HM-190 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.007

LENGTH OF STREAM REACH (ft): 416 | LAT: 38.81162 | LONG: -82.95099 | RIVER MILE:

DATE: 10/31/19 | SCORER: RW | COMMENTS: Ephemeral

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

Located at edge of pasture, crosses an access road and T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	20%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	40%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	20%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **16**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Long Run Distance from Evaluated Stream 1.13 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): Y Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

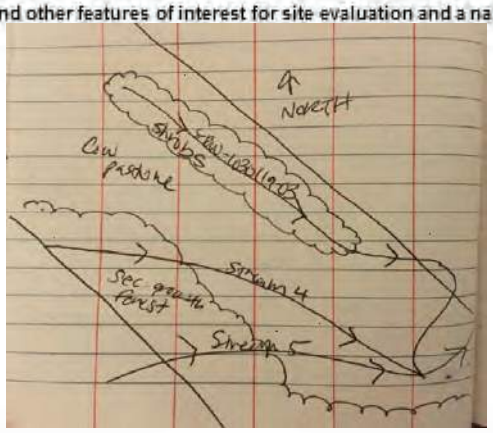
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Located at edge of pasture, crosses an access road and T-Line ROW

Site Photos



Substrate



upstream NW



downstream SE

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **54**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103119-04
SITE NUMBER: HM-191 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.094
LENGTH OF STREAM REACH (ft): 270 | LAT: 38.81089 | LONG: -82.95067 | RIVER MILE:
DATE: 10/31/19 | SCORER: RW | COMMENTS: Intermittent

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
T-line, access road and ROW clearing.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **21** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points
Substrate Max = 40
24
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☑ > 10 - 22.5 cm [25 pts]
☐ 5 cm - 10 cm [15 pts]
☐ < 5 cm [5pts]
☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **5**

Pool Depth Max = 30
25

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **3**

Bankfull Width Max=30
5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☐	☐	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☑	☑	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None ☑ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >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: Long Run Distance from Evaluated Stream 1 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): Y Canopy (% open): 95%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

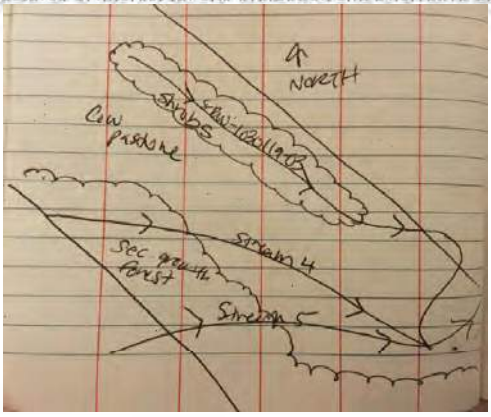
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

T-line, access road and ROW clearing.

Site Photos



upstream West



downstream East



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 55

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103119-05

SITE NUMBER: HM-192 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.023

LENGTH OF STREAM REACH (ft): 209 | LAT: 38.81064 | LONG: -82.95058 | RIVER MILE:

DATE: 10/31/19 | SCORER: JFW | COMMENTS: Ephemeral

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

Crosses T-Line ROW and located along an existing access road

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	60%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 5

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☐	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☑	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Currently raining, stream interpreted as ephemeral.

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Long Run Distance from Evaluated Stream 1 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 70%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

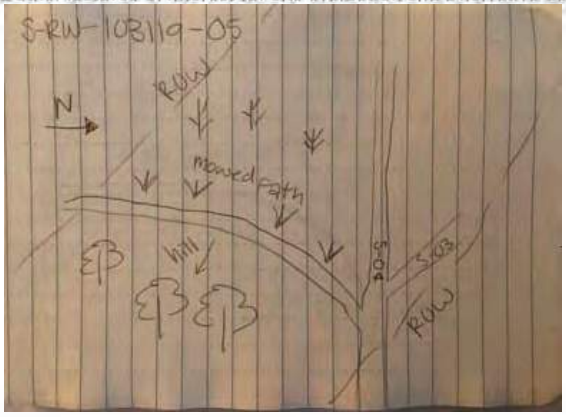
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Crosses T-Line ROW and located along an existing access road.

Site Photos



upstream SW



downstream NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **44**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103119-06

SITE NUMBER: HM-193 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.040

LENGTH OF STREAM REACH (ft): 258 | LAT: 38.80793 | LONG: -82.94843 | RIVER MILE:

DATE: 10/31/19 | SCORER: RW | COMMENTS: Ephemeral

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

Crosses T-line ROW, areas of shrub/tree clearing.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points
Substrate Max = 40: **14**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☑ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 5

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☑ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Long Run Distance from Evaluated Stream 0.6 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): Y Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

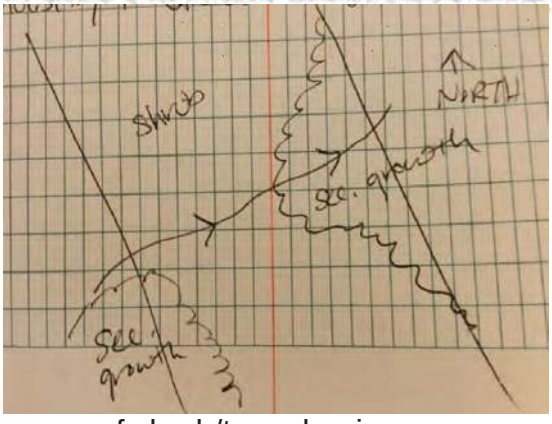
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Stream crosses T-line ROW, areas of shrub/tree clearing.

Site Photos



upstream SW



downstream NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 49

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103119-07

SITE NUMBER: HM-194 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.042

LENGTH OF STREAM REACH (ft): 233 | LAT: 38.80559 | LONG: -82.94665 | RIVER MILE:

DATE: 10/31/19 | SCORER: RW | COMMENTS: Intermittent

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

T line ROW and shrub clearing

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **19**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 4

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS: Partly forest partly cleared row

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Long Run Distance from Evaluated Stream 1.2 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 10/31/19 Quantity: 0.52

Photo-documentation Notes: Attached

Elevated Turbidity? (Y/N): Y Canopy (% open): 90%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

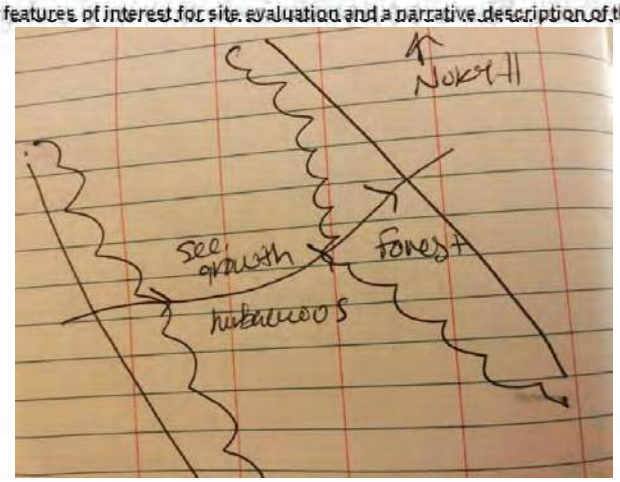
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



T-line ROW and shrub clearing

Site Photos



upstream SW



downstream NE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 23

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-09

SITE NUMBER: HM-195 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 311 | LAT: 38.80151 | LONG: -82.94319 | RIVER MILE:

DATE: 10/30/19 | SCORER: RW | COMMENTS: Ephemeral channel

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

Originates from pasture and ponded water in dirt road.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	50%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **15** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **3**

HHEI Metric Points
Substrate Max = 40: **18**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **2**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑	Wide >10m	☐ ☐	Mature Forest, Wetland	☐ ☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑ ☑	Immature Forest, Shrub or Old Field	☐ ☐ Urban or Industrial
☐	☐	Narrow <5m	☐ ☐	Residential, Park, New Field	☐ ☐ Open Pasture, Row Crop
☐	☐	None	☐ ☐	Fenced Pasture	☐ ☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Bonser Run Distance from Evaluated Stream 0.7 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

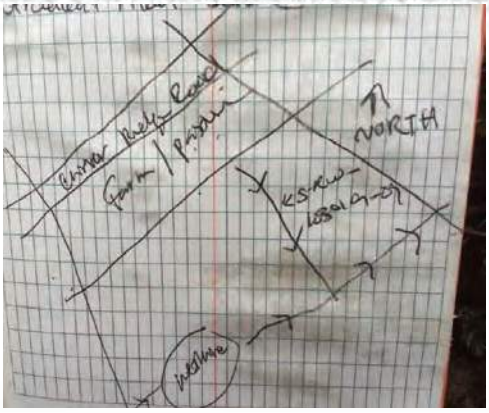
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

Originates from pasture and ponded water in dirt road.

Site Photos



upstream NW



downstream SE



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 48

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-01

SITE NUMBER: HM-197 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.015

LENGTH OF STREAM REACH (ft): 533 | LAT: 38.79945 | LONG: -82.94187 | RIVER MILE:

DATE: 10/30/19 | SCORER: RW | COMMENTS: Ephemeral

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

Crosses T-Line ROW perpendicularly

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☑ ☐	BOULDER (>256 mm) [16 pts]	40%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	25%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 65%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **28** | TOTAL NUMBER OF SUBSTRATE TYPES: (B) **5**

HHEI Metric Points
Substrate Max = 40: **33**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: dry | MAXIMUM POOL DEPTH (inches): **0**

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): **3.5**

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 1.85 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

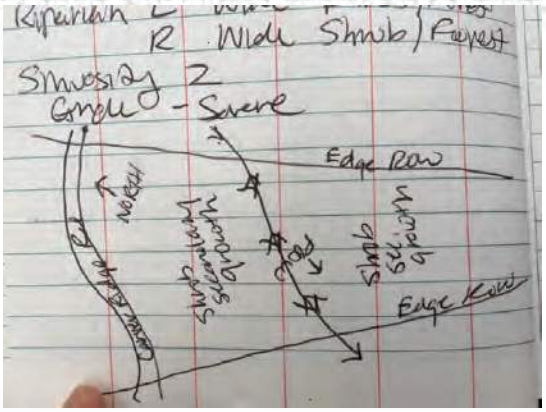
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Stream crosses T-line ROW perpendicularly

Site Photos



upstream North



downstream South



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 23

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-02
SITE NUMBER: HM-198 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001
LENGTH OF STREAM REACH (ft): 116 | LAT: 38.79822 | LONG: -82.94105 | RIVER MILE:
DATE: 10/30/19 | SCORER: JFW | COMMENTS: Ephemeral

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
Crosses T-Line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☑ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	60%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **18**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 1.81 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Upstream, downstream, substrate

Elevated Turbidity? (Y/N): N Canopy (% open): 40%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

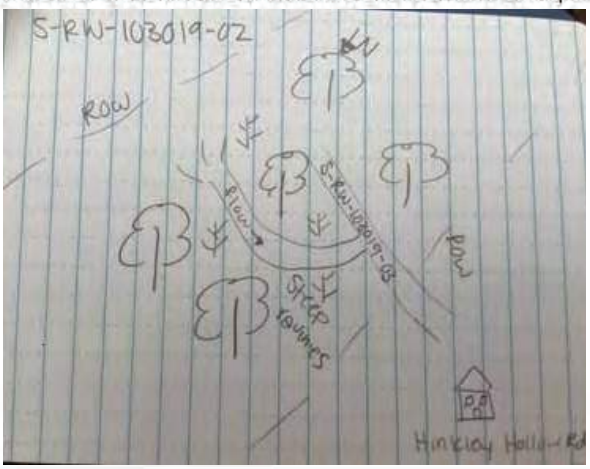
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



stream crosses T-Line ROW

Site Photos



upstream / NE



downstream / SW



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 36

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-03

SITE NUMBER: HM-199 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.002

LENGTH OF STREAM REACH (ft): 258 | LAT: 38.79812 | LONG: -82.94094 | RIVER MILE:

DATE: 10/30/19 | SCORER: RW | COMMENTS: Ephemeral

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

Crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	20%
☑	BOULDER (>256 mm) [16 pts]	50%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	30%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 80%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **31**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☑ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Munn Run Distance from Evaluated Stream 1.83 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: Photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

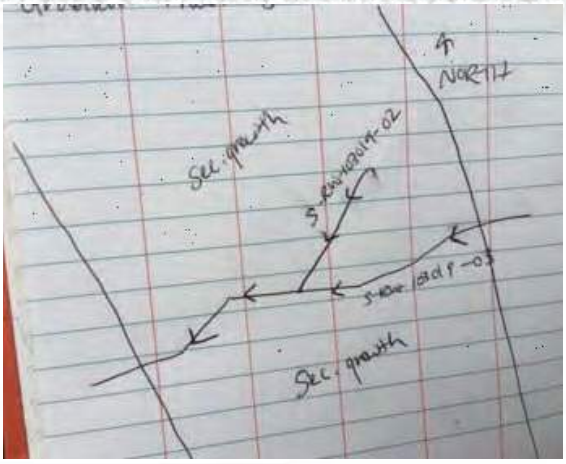
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream crosses T-line ROW

Site Photos



upstream East



downstream West



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 40

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-04

SITE NUMBER: HM-200 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.066

LENGTH OF STREAM REACH (ft): 403 | LAT: 38.79418 | LONG: -82.93860 | RIVER MILE:

DATE: 10/30/19 | SCORER: RW | COMMENTS: intermittent

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

located in deep ravine, crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS: stream has intermittent flow, dry at the time of survey

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☑ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 1.48 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

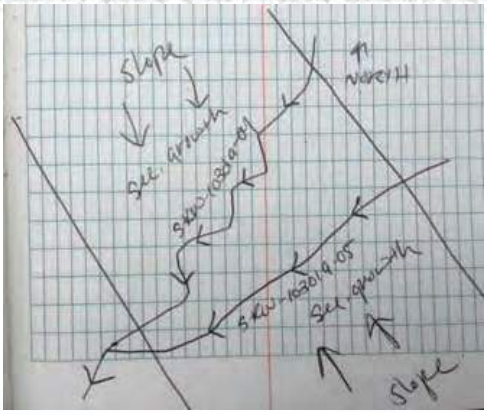
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



stream is located in deep ravine, crosses T-line ROW

Site Photos



upstream NE



downstream SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **51**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-05

SITE NUMBER: HM-201 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.056

LENGTH OF STREAM REACH (ft): 214 | LAT: 38.79367 | LONG: -82.93818 | RIVER MILE:

DATE: 10/30/19 | SCORER: JFW | COMMENTS: ephemeral

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

crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	0%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☑☐	LEAF PACK/WOODY DEBRIS [3 pts]	50%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	15%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☑	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	10%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **16**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 3

Pool Depth Max = 30: **15**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐	Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐	None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream flowing at time of survey

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 1.44 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

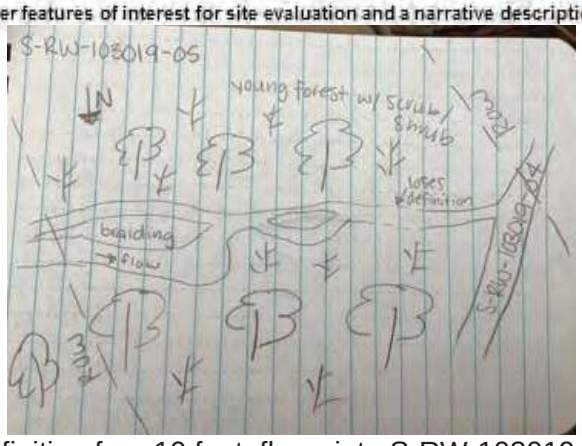
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



braided channel in area, loses definition for ~10 feet, flows into S-RW-103019-04 just outside of ROW

Site Photos



upstream NE



downstream SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 35

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-06

SITE NUMBER: HM-202 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 206 | LAT: 38.79157 | LONG: -82.93691 | RIVER MILE:

DATE: 10/30/19 | SCORER: JFW | COMMENTS: ephemeral

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

crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☑ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	60%
☐ ☐	BEDROCK [16 pts]	5%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	5%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 25%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **20**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 4

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 1.46 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

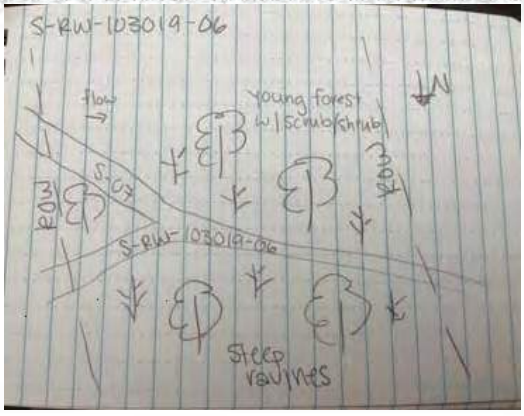
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

severe slope before confluence with S-RW-103019-07, then moderate slope

Site Photos



upstream NE



downstream SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-07

SITE NUMBER: HM-203 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.002

LENGTH OF STREAM REACH (ft): 151 | LAT: 38.79143 | LONG: -82.93654 | RIVER MILE:

DATE: 10/30/19 | SCORER: RW | COMMENTS: ephemeral channel flows to S-RW-103019-06

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

located on edge of T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	60%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points

Substrate Max = 40: **25**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral stream

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 1.43 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

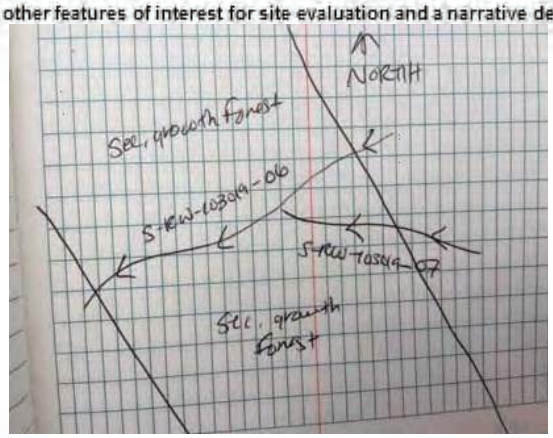
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

located on edge of T-line ROW

Site Photos



upstream SE



downstream NW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-103019-08

SITE NUMBER: HM-204 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 108 | LAT: 38.79118 | LONG: -82.93633 | RIVER MILE:

DATE: 10/30/19 | SCORER: RW | COMMENTS: ephemeral

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

crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	10%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☑☐	COBBLE (65-256 mm) [12 pts]	60%	☐☐	CLAY or HARDPAN [0 pt]	0%
☐☑	GRAVEL (2-64 mm) [9 pts]	25%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	5%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☑ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: ephemeral, moist channel

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 1.49 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

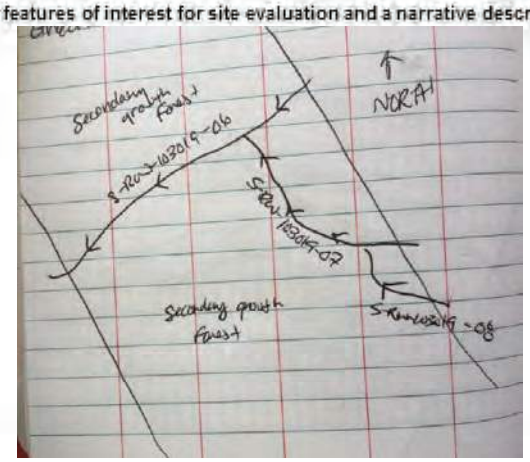
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream crosses T-line ROW

Site Photos



upstream SE



downstream NW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **35**

SITE NAME/LOCATION AEP Hillsboro - Millbrook Park 138kV, S-RW-102819-05

SITE NUMBER HM-205 RIVER BASIN 05090103 RIVER CODE _____ DRAINAGE AREA (mi²) 0.120

LENGTH OF STREAM REACH (ft) 300 LAT 38.78687 LONG -82.93413 RIVER MILE _____

DATE 10/28/19 SCORER RW COMMENTS intermittent

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

crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	15%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☑ ☐	GRAVEL (2-64 mm) [9 pts]	50%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 35%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40
25
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : 2

Pool Depth Max = 30
5

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) 3

Bankfull Width Max=30
5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☑ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 0.99 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 45%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



stream crosses the T-line ROW

Site Photos



upstream NE



downstream SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 35

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102819-06

SITE NUMBER: HM-206 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.120

LENGTH OF STREAM REACH (ft): 213 | LAT: 38.78358 | LONG: -82.83266 | RIVER MILE:

DATE: 10/28/19 | SCORER: RW | COMMENTS: intermittent

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

roadside ditch culverted under Shirley Road

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	40%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☑ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☐ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☑ Narrow <5m	☐	☑ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 0.86 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

roadside ditch culverted under Shirley Road

Site Photos



upstream East



downstream West



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 33

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102919-06
SITE NUMBER: HM-207 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.035
LENGTH OF STREAM REACH (ft): 376 | LAT: 38.78005 | LONG: -82.93205 | RIVER MILE:
DATE: 10/29/19 | SCORER: JFW | COMMENTS: ephemeral

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
crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	70%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	20%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **18**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☐ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☑ Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 0.68 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: US, DS, sub

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

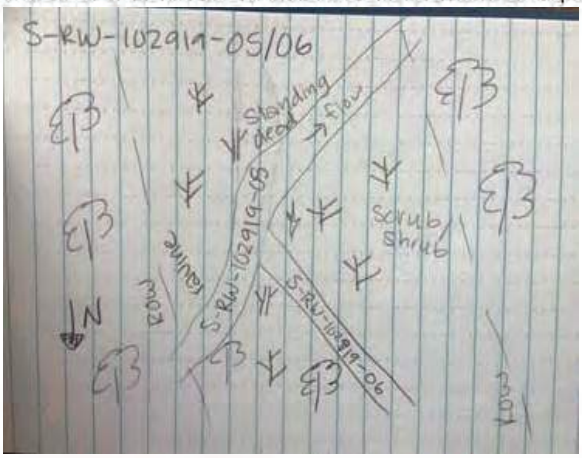
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



stream crosses T-line ROW

Site Photos



substrate



downstream / S



upstream / N

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 33

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102919-05

SITE NUMBER: HM-208 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.009

LENGTH OF STREAM REACH (ft): 109 | LAT: 38.77998 | LONG: -82.93189 | RIVER MILE:

DATE: 10/29/19 | SCORER: JFW | COMMENTS: ephemeral

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

crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	60%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☑ ☐	COBBLE (65-256 mm) [12 pts]	30%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **18**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3.5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☑	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Munn Run Distance from Evaluated Stream 0.71 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

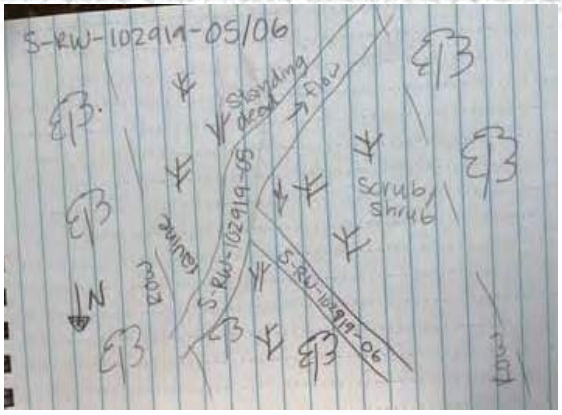
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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


S-RW-102919-05/06
E13
E13
E13

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102919-04

SITE NUMBER: HM-209 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 201 | LAT: 38.77806 | LONG: -82.93167 | RIVER MILE:

DATE: 10/29/19 | SCORER: RW | COMMENTS: ephemeral

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

crosses T-line ROW perpendicularly

1. SUBSTRATE (Estimate percent of every type 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
☐☐	BLDR SLABS [16 pts]	0%	☐☐	SILT [3 pt]	20%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	20%
☐☐	BEDROCK [16 pts]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☑	COBBLE (65-256 mm) [12 pts]	30%	☐☐	CLAY or HARDPAN [0 pt]	0%
☑☐	GRAVEL (2-64 mm) [9 pts]	30%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	0%	☐☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 30%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points
Substrate Max = 40: **25**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 3

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 0.58 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

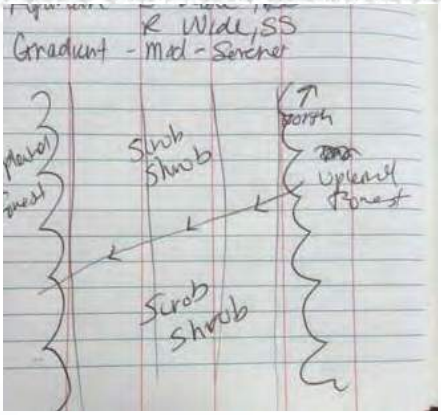
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

crosses T-line ROW perpendicularly

Site Photos



upstream NE



downstream SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **15**

SITE NAME/LOCATION AEP Hillsboro - Millbrook Park 138kV, S-RW-102919-03
SITE NUMBER HM-210 RIVER BASIN 05090103 RIVER CODE _____ DRAINAGE AREA (mi²) 0.004
LENGTH OF STREAM REACH (ft) 104 LAT 38.77181 LONG -82.93028 RIVER MILE _____
DATE 10/29/19 SCORER JFW COMMENTS ephemeral

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
crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	40%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	60%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) **3**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

(B) 2

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points
Substrate Max = 40
5
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ 5 cm - 10 cm [15 pts]
☑ < 5 cm [5pts]
☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS _____ MAXIMUM POOL DEPTH (inches) : **1**

Pool Depth Max = 30
5

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet) **1**

Bankfull Width Max=30
5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☑	☑	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☑ Moist Channel, isolated pools, no flow (intermittent)
☐ Dry channel, no water (ephemeral)

COMMENTS single very small pool; ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Munn Run Distance from Evaluated Stream 0.38 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 75%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

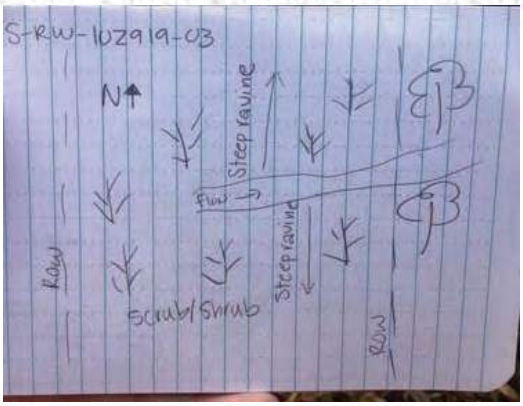
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream crosses T-line ROW

Site Photos



upstream / E



downstream / W



substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 35

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102919-02

SITE NUMBER: HM-211 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 220 | LAT: 38.76678 | LONG: -82.92884 | RIVER MILE:

DATE: 10/29/19 | SCORER: RW | COMMENTS: ephemeral

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

crosses T-line ROW perpendicularly

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	20%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☑ ☐	BEDROCK [16 pts]	35%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	20%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 45

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points
Substrate Max = 40: **30**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☑	☑ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 0.32 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

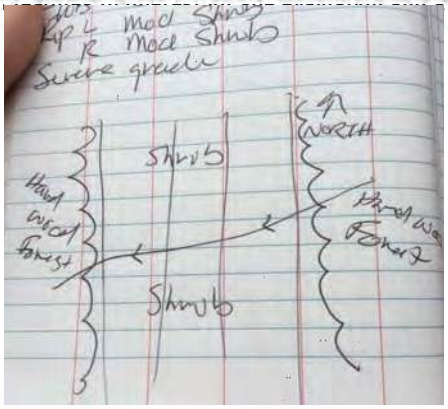
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



crosses T-line ROW perpendicularly

Site Photos



upstream NE



downstream SW



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 32

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102919-01

SITE NUMBER: HM-212 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): 0.005

LENGTH OF STREAM REACH (ft): 326 | LAT: 38.76304 | LONG: -82.92787 | RIVER MILE:

DATE: 10/29/19 | SCORER: JFW | COMMENTS: ephemeral

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

crosses T-line ROW

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	40%
☑ ☐	BEDROCK [16 pts]	40%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	20%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 19 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points
Substrate Max = 40: **22**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐ > 30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts]	☑ < 5 cm [5pts]
☐ > 10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 1.5

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing	☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 0.23 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Clay

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: US, DS, Sub

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

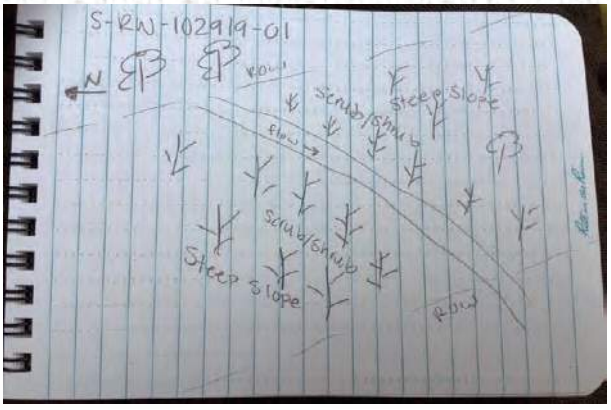
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



FLOW

stream line crosses T-line ROW

Site Photos

upstream / NE
photo taken 01-15-2020



downstream / SW
photo taken 01-15-2020



substrate
photo taken 01-15-2020



Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 57

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102819-04

SITE NUMBER: HM-214 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 129 | LAT: 38.75601 | LONG: -82.92698 | RIVER MILE:

DATE: 10/28/19 | SCORER: RW | COMMENTS: ephemeral

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

crossed by T-line ROW, located on very steep slope with 2 waterfalls

1. SUBSTRATE (Estimate percent of every type 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
☑	BLDR SLABS [16 pts]	30%	☐	SILT [3 pt]	10%
☑	BOULDER (>256 mm) [16 pts]	20%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 70%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 32

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points

Substrate Max = 40: **37**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☑ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 0

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 5

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☑	☑ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☑	☑ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☑ Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☑ 0.5	☐ 1.5	☐ 2.5	☐ >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: Munn Run Distance from Evaluated Stream 0.03 mile

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Porter

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 65%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

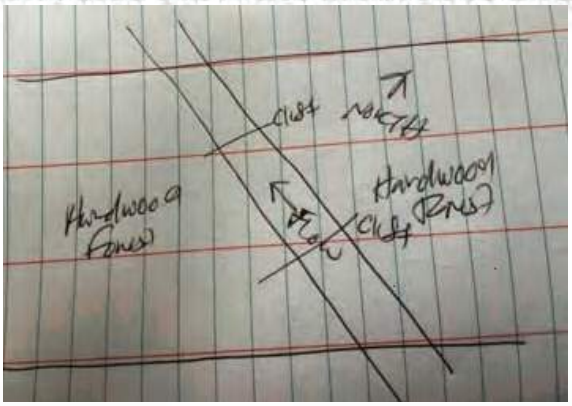
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



crossed by T-line ROW, located on very steep slope with 2 waterfalls

Site Photos



upstream East



downstream West



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) **25**

SITE NAME/LOCATION: AEP Hillsboro - Millbrook Park 138kV, S-RW-102819-02

SITE NUMBER: HM-215 | RIVER BASIN: 05090103 | RIVER CODE: | DRAINAGE AREA (mi²): <0.001

LENGTH OF STREAM REACH (ft): 32 | LAT: 38.75521 | LONG: -82.92741 | RIVER MILE:

DATE: 10/28/19 | SCORER: RW | COMMENTS: Ephemeral

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

Culverted ditch

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	10%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☑	COBBLE (65-256 mm) [12 pts]	10%	☑ ☐	CLAY or HARDPAN [0 pt]	80%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10% (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12

TOTAL NUMBER OF SUBSTRATE TYPES: 3 (B)

HHEI Metric Points

Substrate Max = 40: **15**

A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: **5**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream *

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☑	☑	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: mowed lawn

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

- ☑ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☐ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 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: Munn Run Distance from Evaluated Stream 0 (flows into)

☐ 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: New Boston NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Porter

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/27/19 Quantity: 0.79

Photo-documentation Notes: photos attached

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

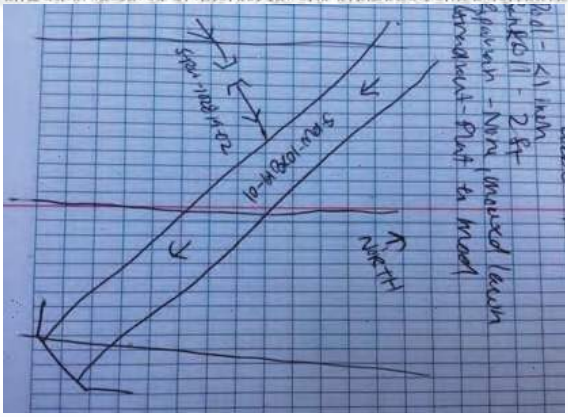
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



stream is a culverted ditch

Site Photos



Upstream west



Downstream east



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 68

SITE NAME/LOCATION: **AEP Hillsboro-Millbrook Park**
SITE NUMBER: S-MJA-121520-08 RIVER BASIN: 05060002 RIVER CODE: DRAINAGE AREA (mi²): 0.160
LENGTH OF STREAM REACH (ft): 208 LAT: 38.94138 LONG: -83.11906 RIVER MILE:
DATE: 12/15/2020 SCORER: MJA COMMENTS: Perennial

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
Flows adjacent to cow pasture

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☐	BOULDER (>256 mm) [16 pts]	5%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	15%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	20%	☐	CLAY or HARDPAN [0 pt]	5%
☐	GRAVEL (2-64 mm) [9 pts]	35%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	15%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points — Substrate Max = 40: 28 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☑	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: MAXIMUM POOL DEPTH (inches): 5.00

Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: AVERAGE BANKFULL WIDTH (feet): 4.00

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 (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☑	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☑	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Bear Creek Distance from Evaluated Stream 0.2 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/20 Quantity: 0.07

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

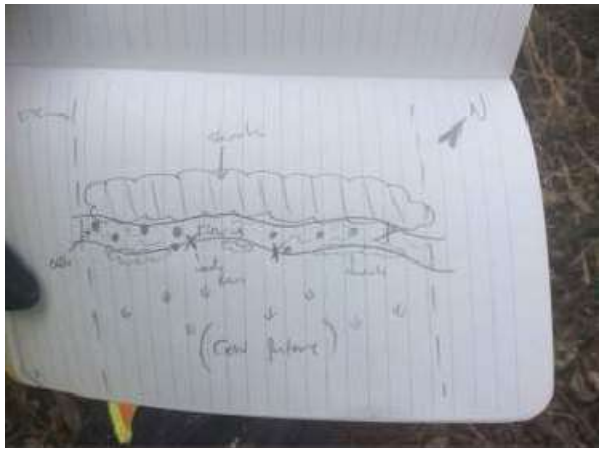
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Site Photos



Southwest/upstream



Northeast/downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 25

SITE NAME/LOCATION: **AEP Hillsboro-Millbrook Park**

SITE NUMBER: S-MJA-121520-07 | RIVER BASIN: 05060002 | RIVER CODE: | DRAINAGE AREA (mi²): 0.001

LENGTH OF STREAM REACH (ft): 15 | LAT: 38.94029 | LONG: -83.11733 | RIVER MILE:

DATE: 12/15/2020 | SCORER: MJA | COMMENTS: Ephemeral

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

Flows from cattle watering hole in active pasture. Highly disturbed.

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	60%
☐	GRAVEL (2-64 mm) [9 pts]	0%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 | TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points — Substrate Max = 40: 5 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5pts]
- ☐ NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: | MAXIMUM POOL DEPTH (centimeters): 2.00

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: | AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: High cattle traffic

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS: Recent precipitation, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >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: Bear Creek Distance from Evaluated Stream 0.17 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/15/20 Quantity: 0.07

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

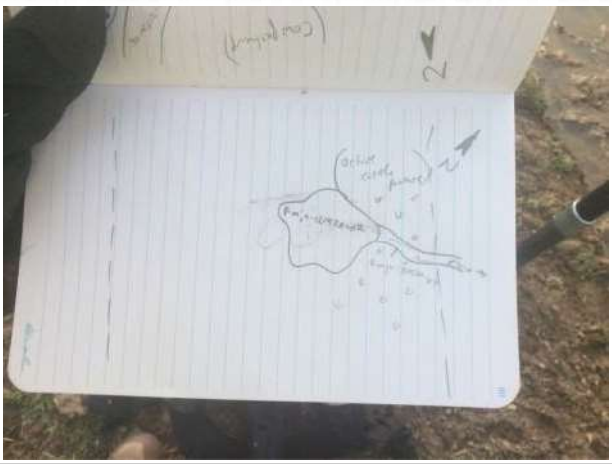
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Site Photos



South/upstream



North/downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 30

SITE NAME/LOCATION: **AEP Hillsboro-Millbrook Park**
SITE NUMBER: S-MJA-121520-05 RIVER BASIN: **05060002** RIVER CODE: _____ DRAINAGE AREA (mi²): **0.001**
LENGTH OF STREAM REACH (ft): **88** LAT: **38.93649** LONG: **-83.11216** RIVER MILE: _____
DATE: **12/15/2020** SCORER: **MJA** COMMENTS: **Intermittent**

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
Flows through maintained power line easement.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	40%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☑ ☐	CLAY or HARDPAN [0 pt]	60%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **0%**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) **3** TOTAL NUMBER OF SUBSTRATE TYPES: (B) **2**

HHEI Metric Points
Substrate Max = 40: **5**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☑	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Water level seems odd for size of stream. MAXIMUM POOL DEPTH (centimeters): **25**

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): **2.00**

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☑	☑	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Flow volume atypical for size of stream. May be recent tributary reroute.

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Bear Creek Distance from Evaluated Stream 0.00 feet

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/15/20 Quantity: 0.07

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for waterchemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

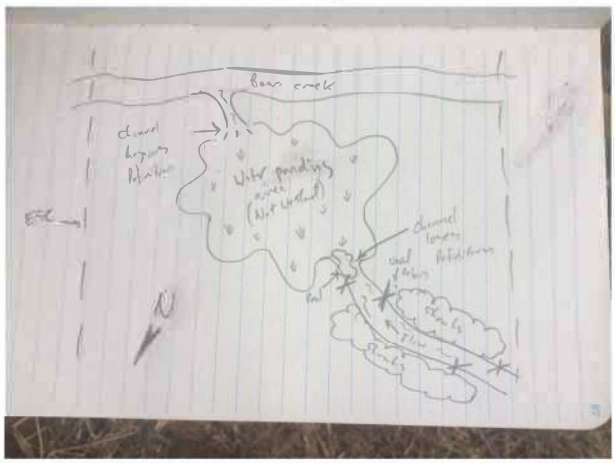
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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 Photos



Northwest/upstream



Southeast/downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 39

SITE NAME/LOCATION: **AEP Hillsboro-Millbrook Park**
SITE NUMBER: S-MJA-121520-03 RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.009
LENGTH OF STREAM REACH (ft): 156 LAT: 38.93432 LONG: -83.10893 RIVER MILE: _____
DATE: 12/15/2020 SCORER: MJA COMMENTS: Ephemeral

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
Flows through active cow pasture

1. SUBSTRATE (Estimate percent of every type 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
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	5%
☑	BOULDER (>256 mm) [16 pts]	35%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pts]	0%	☐	FINE DETRITUS [3 pts]	0%
☑	COBBLE (65-256 mm) [12 pts]	25%	☐	CLAY or HARDPAN [0 pt]	5%
☐	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	10%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 60%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 28 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points
Substrate Max = 40: **34**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 0.00

Pool Depth Max = 30: **0**

3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check *ONLY* one box):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 2.50

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	
☐	☐	Wide >10m	☐ ☐	Mature Forest, Wetland
☐	☐	Moderate 5-10m	☐ ☐	Immature Forest, Shrub or Old Field
☐	☐	Narrow <5m	☐ ☐	Residential, Park, New Field
☑	☑	None	☐ ☐	Fenced Pasture
			☐ ☐	Conservation Tillage
			☐ ☐	Urban or Industrial
			☑ ☑	Open Pasture, Row Crop
			☐ ☐	Mining or Construction

COMMENTS: _____

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☒	Dry channel, no water (ephemeral)

COMMENTS: _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>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: Bear Creek Distance from Evaluated Stream 0.26 mile

☐ 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: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/20 Quantity: 0.07

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

Salamanders Observed? (Y/N) N Species observed (if known): _____

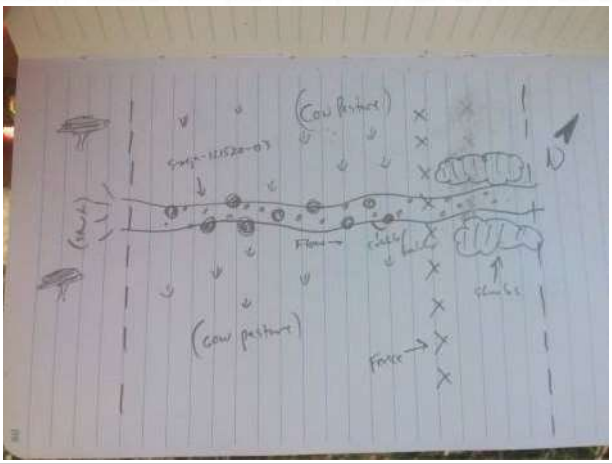
Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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

FLOW



Site Photos



Southwest/upstream



Northeast/downstream



Substrate

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3): 25

SITE NAME/LOCATION: **Hillsboro-Millbrook Park**
SITE NUMBER: S-MJA-121520-02 RIVER BASIN: 05060002 RIVER CODE: _____ DRAINAGE AREA (mi²): 0.001
LENGTH OF STREAM REACH (ft): 121 LAT: 38.93062 LONG: -83.10418 RIVER MILE: _____
DATE: 12/15/2020 SCORER: MJA COMMENTS: Ephemeral

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
Eroded. Grass mowed to top of bank on both sides.

1. SUBSTRATE (Estimate percent of every type 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
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pts]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☑	CLAY or HARDPAN [0 pt]	70%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	0%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points
Substrate Max = 40: **5**
A + B

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 feet)* evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☑	5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0pts]

COMMENTS: Recent precipitation, estimated ephemeral 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):

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (≤ 3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 2.00

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ★ NOTE: River Left (L) and Right (R) as looking downstream ★

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☑	☑	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):

☑	Stream Flowing	☐	Moist Channel, isolated pools, no flow (intermittent)
☐	Subsurface flow with isolated pools (interstitial)	☐	Dry channel, no water (ephemeral)

COMMENTS: Recent precipitation, estimated ephemeral

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☐	0.5	☑	1.5	☐	2.5	☐	>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: Bear Creek Distance from Evaluated Stream 1.54 miles

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Scioto Township/City: Morgan

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/15/20 Quantity: 0.07

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

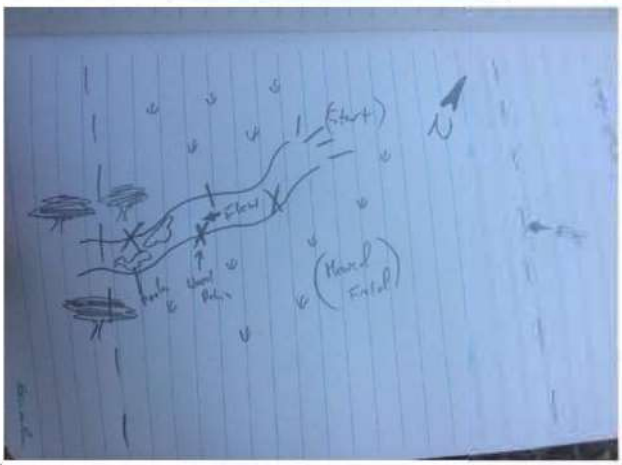
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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 Photos



North/upstream



South/downstream



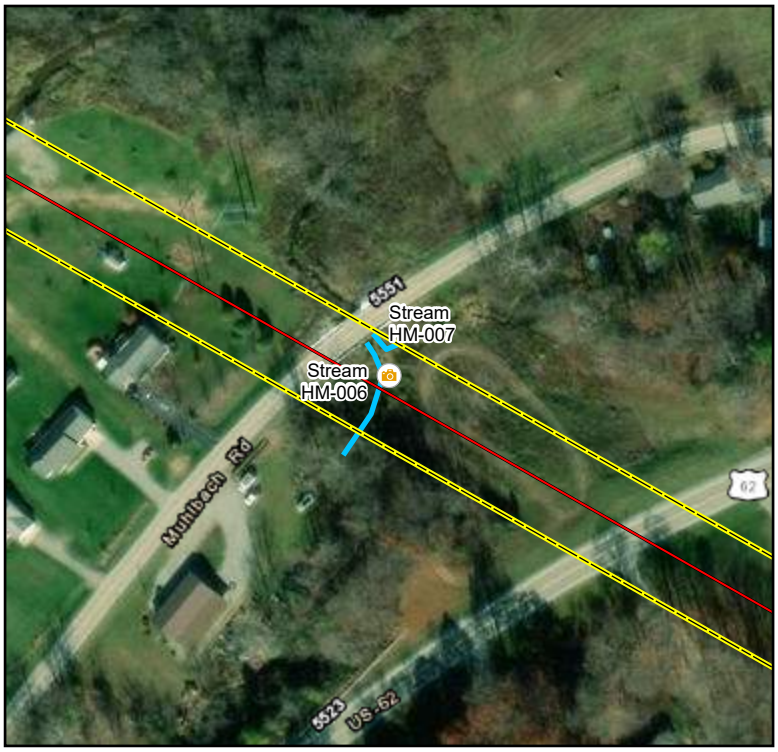
Substrate

Appendix E
OAC Chapter 3745-1 Streams - Representative Photographs

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-006
Feature ID:
S-MJA-091819-01
Photo Date:
09-18-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-011
Feature ID:
S-MJA-091919-02
Photo Date:
09-19-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-041
Feature ID:
S-SAH-092519-06
Photo Date:
09-25-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-047
Feature ID:
S-MJA-093019-01
Photo Date:
09-30-2019
Photo Direction:
Downstream
Comments:
None



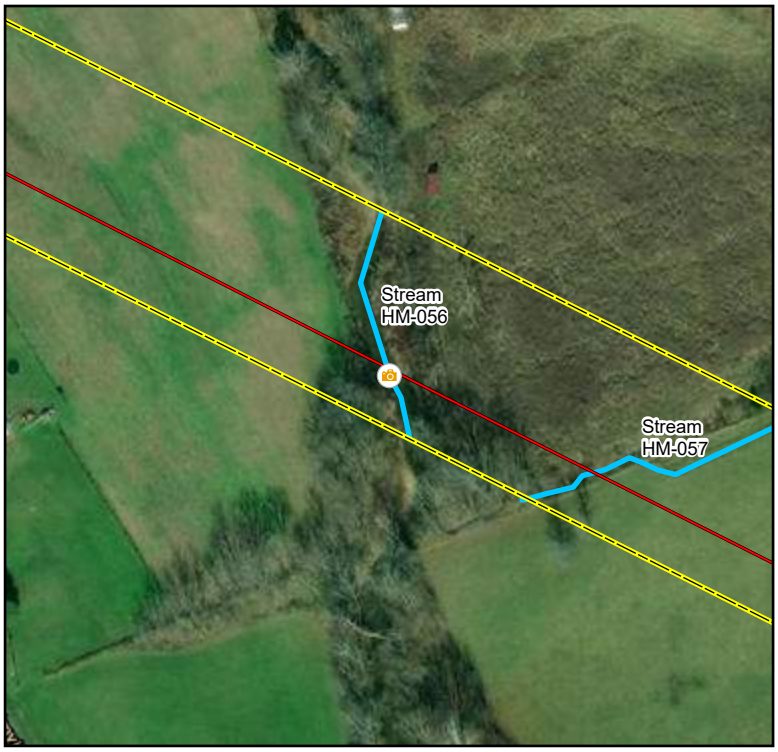
- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-056
Feature ID:
S-KJD-100119-05
Photo Date:
10-01-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-072
Feature ID:
S-MJA-100419-01
Photo Date:
10-04-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-073
Feature ID:
S-MJA-100819-01
Photo Date:
10-08-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-092
Feature ID:
S-MJA-100919-03
Photo Date:
10-09-2019
Photo Direction:
Upstream
Comments:
None



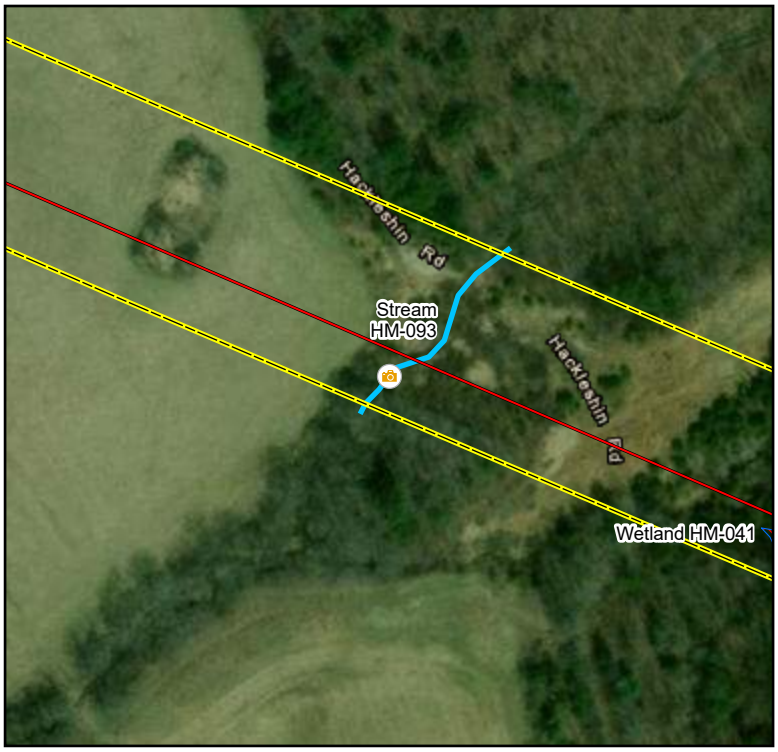
- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-093
Feature ID:
S-MJA-100919-04
Photo Date:
10-09-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-100
Feature ID:
S-MJA-101019-07
Photo Date:
10-10-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-109
Feature ID:
S-BCR-101419-07
Photo Date:
10-14-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-117
Feature ID:
S-BCR-101519-05
Photo Date:
10-15-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-127
Feature ID:
S-BCR-101819-01
Photo Date:
10-18-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-128
Feature ID:
S-BCR-101719-04
Photo Date:
10-17-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-129
Feature ID:
S-BCR-101719-03
Photo Date:
10-17-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



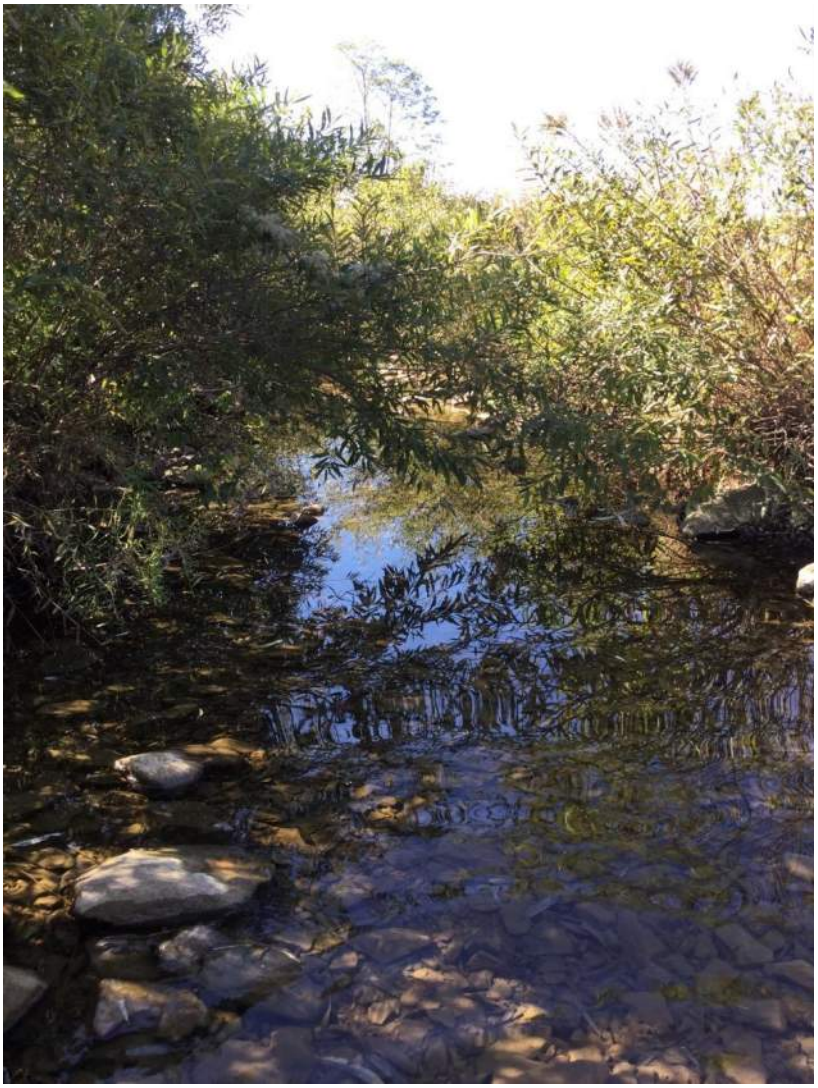
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Feature ID:
S-BCR-101719-01
Photo Date:
10-17-2019
Photo Direction:
Downstream
Comments:
None



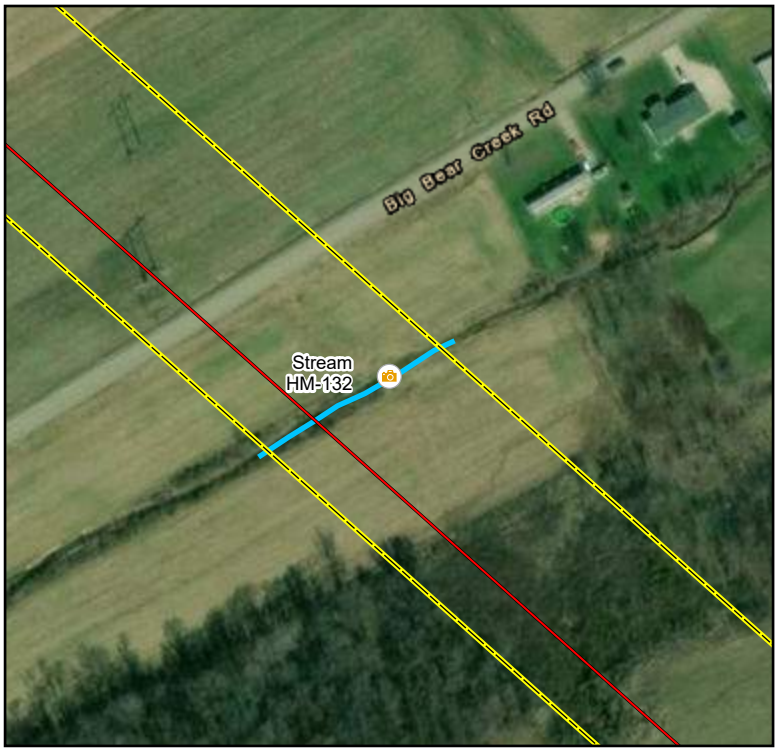
- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-132
Feature ID:
S-BCR-101819-04
Photo Date:
10-18-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-150
Feature ID:
S-MJA-110119-02
Photo Date:
11-01-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-159
Feature ID:
S-MJA-110119-12
Photo Date:
11-01-2019
Photo Direction:
Downstream
Comments:
None



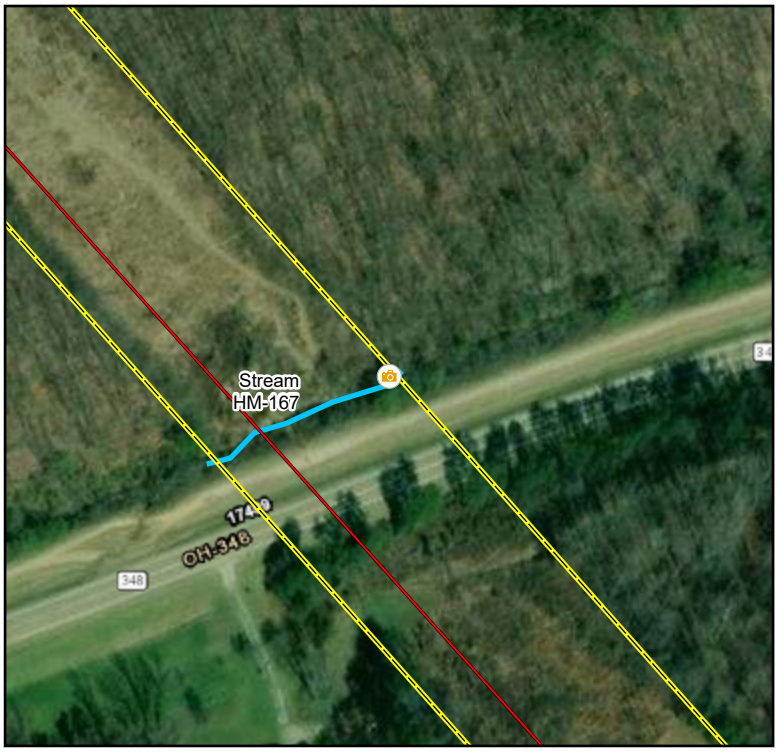
- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-167
Feature ID:
S-MJA-103119-01
Photo Date:
10-31-2019
Photo Direction:
Upstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-170
Feature ID:
S-MJA-102819-02
Photo Date:
10-28-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-174
Feature ID:
S-MJA-103019-05
Photo Date:
10-30-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-187
Feature ID:
S-MJA-102919-09
Photo Date:
10-29-2019
Photo Direction:
Downstream
Comments:
None



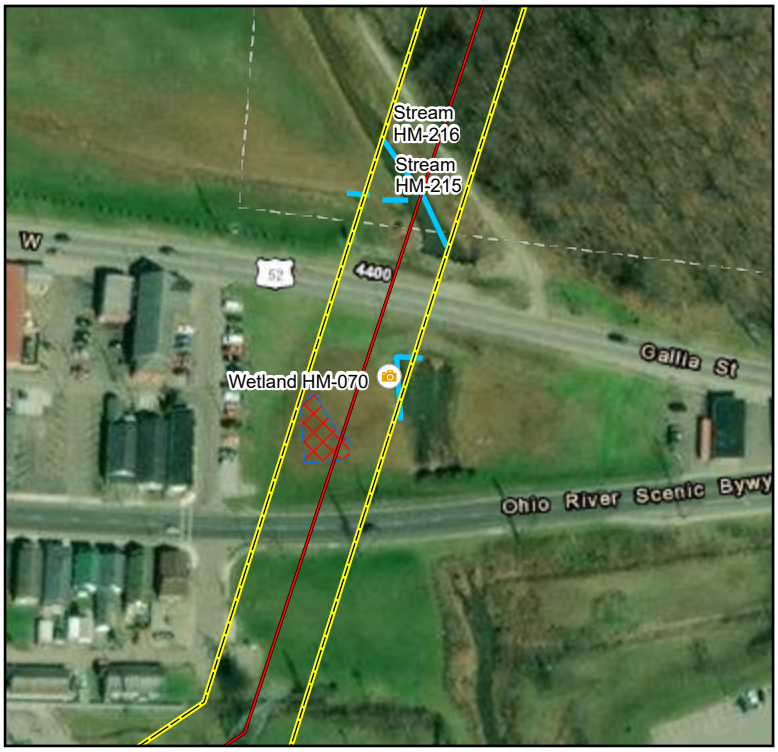
- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project



Report ID:
Stream HM-216
Feature ID:
S-RW-102819-01
Photo Date:
10-28-2019
Photo Direction:
Downstream
Comments:
None



- Photo Point Location
- Hillsboro to Millbrook Park 138 kV Alignment
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated Pond

JACOBS

Hillsboro to Millbrook Park 138 kV Rebuild Project

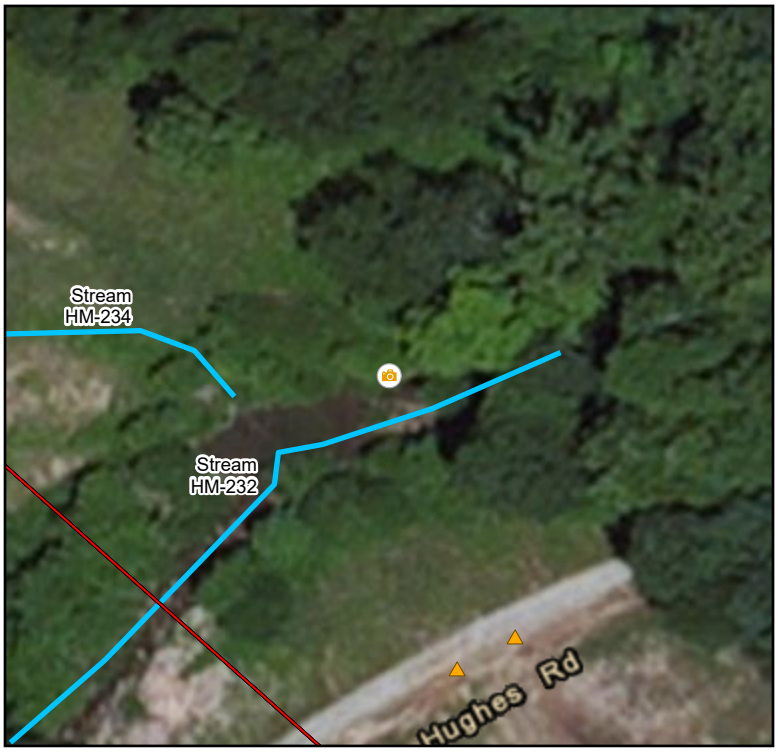


Report ID:
Stream HM-232

Photo Date:
12/15/20

Photo Direction:
Upstream

Comments:
None



- Photo Point Location
- Culvert
- Hillsboro to Millbrook Park 138 kV Alignment
- Access Roads
- Survey Corridor
- Delineated Stream
- Delineated PEM Wetland
- Delineated PSS Wetland
- Delineated PFO Wetland
- Delineated Pond

JACOBS

Appendix F
Jacobs' Open Water/Pond Data Forms

JACOBS

REPORT ID: Pond HM-001

POND DATA SHEET

FEATURE ID: P-MJA-091919-01	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 09/19/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Sara Hayes	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Highland County	**IS THIS A MAPPED NWI FEATURE?:** Yes-PUBGh

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>24"
AVG. WIDTH (WATER SURFACE):	80'
APPROXIMATE SIZE:	0.17 acres in survey corridor, extends beyond both edges of survey corridor.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green
PRIMARY SUBSTRATE (IF OBSERVED):	Silt
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Maintained transmission ROW. Forested outside ROW boundaries.
WETLAND FRINGE (IF PRESENT):	None present

COMMENTS

Man-made fishing pond; wood dock observed. Stream flows into pond from south (outside of survey corridor).

Site Photos



Northwest

JACOBS

REPORT ID: Pond HM-002

POND DATA SHEET

FEATURE ID: P-SAH-092219-01	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 09/22/19	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Sara Hayes	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Scioto County	**IS THIS A MAPPED NWI FEATURE?:** Yes - PUBGh

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>24"
AVG. WIDTH (WATER SURFACE):	150'
APPROXIMATE SIZE:	0.01 acres within survey corridor, extends beyond southwest corridor boundary.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky with tan hue
PRIMARY SUBSTRATE (IF OBSERVED):	Silt/clay
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Agricultural
WETLAND FRINGE (IF PRESENT):	None

COMMENTS

Man-made pond located within agricultural land use.

Site Photos



Southeast

JACOBS

REPORT ID: Pond HM-003

POND DATA SHEET

FEATURE ID: P-SAH-092519-01	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 09/25/19	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Sara Hayes	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Scioto County	**IS THIS A MAPPED NWI FEATURE?:** Yes - PUBGh

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>24"
AVG. WIDTH (WATER SURFACE):	150'
APPROXIMATE SIZE:	0.1 acres within survey corridor, extend north of survey corridor

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky with tan hue
PRIMARY SUBSTRATE (IF OBSERVED):	Silt/clay
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Residential
WETLAND FRINGE (IF PRESENT):	None

COMMENTS

Man-made pond

Site Photos



Northwest

JACOBS

REPORT ID: Pond HM-004

POND DATA SHEET

FEATURE ID: P-MJA-093019-01	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 09/30/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Daniel Scurry	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Highland County	**IS THIS A MAPPED NWI FEATURE?:** No

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>18"
AVG. WIDTH (WATER SURFACE):	45'
APPROXIMATE SIZE:	0.08 acres. Entire pond contained within the boundaries of the survey corridor.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green
PRIMARY SUBSTRATE (IF OBSERVED):	Silt
POTENTIAL HABITAT FOR:	Amphibians and nesting waterfowl.
SURROUNDING LAND USE:	Residential property/maintained transmission ROW. Paved road ~20 feet from southeast corner of pond.
WETLAND FRINGE (IF PRESENT):	none present

COMMENTS

Man-made retention pond. Two ducks observed nesting in man-made floating "duck house" on pond.

Site Photos



South

JACOBS

REPORT ID: Pond HM-005

POND DATA SHEET

FEATURE ID: P-MJA-100219-01	**ASSOCIATED FEATURES:** S-MJA-100219-02 & W-MJA-100219-02
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/02/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Daniel Scurry	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Highland County	**IS THIS A MAPPED NWI FEATURE?:** No

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>24"
AVG. WIDTH (WATER SURFACE):	80'
APPROXIMATE SIZE:	0.38 acres within survey corridor boundaries. Pond extends outside corridor to northeast.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green
PRIMARY SUBSTRATE (IF OBSERVED):	Silt
POTENTIAL HABITAT FOR:	Amphibians, waterfowl, fish (stocked).
SURROUNDING LAND USE:	Man-made pond in cattle pasture, within maintained transmission ROW.
WETLAND FRINGE (IF PRESENT):	Small PEM down gradient of pond, to the east.

COMMENTS

Man-made retention pond in cattle pasture. Intermittent stream flows into pond from northwest. Dock with paddle boat observed on east end.

Site Photos



Southeast

JACOBS

REPORT ID: Pond HM-006

POND DATA SHEET

FEATURE ID: P-MJA-101119-01	**ASSOCIATED FEATURES:** S-MJA-101119-01
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/11/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Daniel Scurry	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Adams County	**IS THIS A MAPPED NWI FEATURE?:** No

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>12"
AVG. WIDTH (WATER SURFACE):	19'
APPROXIMATE SIZE:	0.01 acres, entirely contained within survey corridor.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green
PRIMARY SUBSTRATE (IF OBSERVED):	Silt
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Water-filled sinkhole pond in cattle pasture, within maintained transmission ROW.
WETLAND FRINGE (IF PRESENT):	none present

COMMENTS

Pond appears to be a water-filled sinkhole. Flows out into ephemeral stream. Note: pond dimensions estimated from a distance due to the presence of cattle during visit.

Site Photos



Northwest

JACOBS

REPORT ID: Pond HM-007

POND DATA SHEET

FEATURE ID: P-bcr-101519-01	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/15/19	**CLIENT/PROJECT NAME:** AEP/Hillsboro-Millbrook Park 138 kV
INVESTIGATORS: B. Robertson/J. Wessel	**ROUTE:**
STATE/COUNTY: OH/Pike	**IS THIS A MAPPED NWI FEATURE?:** Yes, PUBGx

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	40"
AVG. WIDTH (WATER SURFACE):	125'
APPROXIMATE SIZE:	125'x125'

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green
PRIMARY SUBSTRATE (IF OBSERVED):	N/A
POTENTIAL HABITAT FOR:	Amphibians, small fish
SURROUNDING LAND USE:	Residential/Agriculture
WETLAND FRINGE (IF PRESENT):	N/A

COMMENTS

Man-made pond on residential property, adjacent to agricultural field and within transmission line ROW.

Site Photos



North

JACOBS

REPORT ID: Pond HM-008

POND DATA SHEET

FEATURE ID: P-bcr-101619-01	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/16/19	**CLIENT/PROJECT NAME:** AEP/Hillsboro-Millbrook Park 138 kV
INVESTIGATORS: B. Robertson/J. Wessel	**ROUTE:**
STATE/COUNTY: OH/Pike	**IS THIS A MAPPED NWI FEATURE?:** Yes, PEM1f

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	24"
AVG. WIDTH (WATER SURFACE):	100'
APPROXIMATE SIZE:	100'x100'

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green
PRIMARY SUBSTRATE (IF OBSERVED):	N/A
POTENTIAL HABITAT FOR:	Amphibians, small fish
SURROUNDING LAND USE:	Residential
WETLAND FRINGE (IF PRESENT):	N/A

COMMENTS

Man-made pond on residential property and within transmission line ROW.

Site Photos



South

JACOBS

REPORT ID: Pond HM-009

POND DATA SHEET

FEATURE ID: P-bcr-101719-01	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/17/19	**CLIENT/PROJECT NAME:** AEP/Hillsboro-Millbrook Park 138 kV
INVESTIGATORS: B. Robertson/J. Wessel	**ROUTE:**
STATE/COUNTY: OH/Pike	**IS THIS A MAPPED NWI FEATURE?:** Yes, PUBGh

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	24"
AVG. WIDTH (WATER SURFACE):	90'
APPROXIMATE SIZE:	100'x80'

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green
PRIMARY SUBSTRATE (IF OBSERVED):	N/A
POTENTIAL HABITAT FOR:	Amphibians, small fish
SURROUNDING LAND USE:	Hayfield/forest
WETLAND FRINGE (IF PRESENT):	N/A

COMMENTS

Small pond at the edge of a transmission line ROW and adjacent to a hayfield.

Site Photos



Southeast

JACOBS

REPORT ID: Pond HM-010

POND DATA SHEET

FEATURE ID: P-MJA-102819-01	**ASSOCIATED FEATURES:** W-MJA-102819-01
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/28/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Daniel Scurry	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Scioto County	**IS THIS A MAPPED NWI FEATURE?:** Yes - PUBGx

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>18"
AVG. WIDTH (WATER SURFACE):	44'
APPROXIMATE SIZE:	0.1 acres, extends beyond survey corridor boundary to the south.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky green, >90% covered with duckweed
PRIMARY SUBSTRATE (IF OBSERVED):	Silt
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Mowed junkyard/maintained transmission ROW.
WETLAND FRINGE (IF PRESENT):	Surrounded by ~20 feet wide PEM buffer.

COMMENTS

Water for pond appears to be sourced by overflow from a retention pond to the south (outside of the survey corridor). A large pile of burning trash was observed on the southeast corner.

Site Photos



North

JACOBS

REPORT ID: Pond HM-011

POND DATA SHEET

FEATURE ID: P-MJA-102819-02	**ASSOCIATED FEATURES:** S-MJA-102819-01
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/28/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Daniel Scurry	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Scioto County	**IS THIS A MAPPED NWI FEATURE?:** Yes - PUBGx

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>36"
AVG. WIDTH (WATER SURFACE):	265'
APPROXIMATE SIZE:	0.61 acres within survey corridor, extends beyond survey corridor boundary to the north.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	High algae content. Water had a blue tint.
PRIMARY SUBSTRATE (IF OBSERVED):	Silt within pond, rip-rap along the banks.
POTENTIAL HABITAT FOR:	Amphibians and fish (stocked)
SURROUNDING LAND USE:	Mowed junkyard/maintained transmission ROW. Large barn-like buildings along the southeast edge. Gravel access road runs parallel to south edge.
WETLAND FRINGE (IF PRESENT):	none present

COMMENTS

Large man-made retention pond on highly developed junkyard property. Stream (S-MJA-102819-01) appears to flow under access road and into pond via a culvert on the southeast corner.

Site Photos



Overview

JACOBS

REPORT ID: Pond HM-012

POND DATA SHEET

FEATURE ID: P-MJA-102919-01	**ASSOCIATED FEATURES:** W-MJA-102919-02
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/29/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Daniel Scurry	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Scioto County	**IS THIS A MAPPED NWI FEATURE?:** No

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>12"
AVG. WIDTH (WATER SURFACE):	25'
APPROXIMATE SIZE:	0.03 acres, entirely within survey corridor.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky with gray hue
PRIMARY SUBSTRATE (IF OBSERVED):	Silt/clay
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Maintained transmission ROW, surrounded by ATV paths.
WETLAND FRINGE (IF PRESENT):	PEM fringe on north edge of pond .

COMMENTS

Water ponding on top of clayey, ATV-disturbed ridge-top. Local concave relief may be the result of years of ATV rutting.

Site Photos



West

JACOBS

REPORT ID: Pond HM-013

POND DATA SHEET

FEATURE ID: P-MJA-102919-02	**ASSOCIATED FEATURES:**
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 10/29/2019	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Daniel Scurry	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Scioto County	**IS THIS A MAPPED NWI FEATURE?:** Yes - PUBGh

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>24"
AVG. WIDTH (WATER SURFACE):	62'
APPROXIMATE SIZE:	0.04 acres within survey corridor, extends beyond east corridor boundary.

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Murky with tan hue
PRIMARY SUBSTRATE (IF OBSERVED):	Silt/clay
POTENTIAL HABITAT FOR:	Amphibians (several frogs observed)
SURROUNDING LAND USE:	Pond within active cattle pasture, in maintained transmission ROW.
WETLAND FRINGE (IF PRESENT):	none present

COMMENTS

Cattle-disturbed retention pond within active pasture. Pond edges highly eroded. Patches of cattail observed growing in the center.

Site Photos



North

JACOBS

REPORT ID: Pond HM-017

POND DATA SHEET

FEATURE ID: P-MJA-121520-02	**ASSOCIATED FEATURES:** Stream HM-231
SURVEY TYPE: Wetland and waterbodies delineation	
DATE: 12/15/2020	**CLIENT/PROJECT NAME:** AEP Hillsboro to Millbrook Park
INVESTIGATORS: Matt Abbott/Jen Wessel	**ROUTE:** Existing Centerline
STATE/COUNTY: Ohio/Scioto County	**IS THIS A MAPPED NWI FEATURE?:** No

WATERBODY CHARACTERISTICS

WATERBODY TYPE:	Pond
AVG. DEPTH:	>18 inches
AVG. WIDTH (WATER SURFACE):	60 feet
APPROXIMATE SIZE:	0.08 acre

QUALITATIVE ATTRIBUTES

AVERAGE WATER APPEARANCE:	Mostly clear with some algae.
PRIMARY SUBSTRATE (IF OBSERVED):	Silt/Clay
POTENTIAL HABITAT FOR:	Amphibians
SURROUNDING LAND USE:	Maintained transmission ROW. Active Cow pasture.
WETLAND FRINGE (IF PRESENT):	None present

COMMENTS

Excavated water hole for cattle in active cattle pasture. Highly disturbed due to cattle activity. No wetland fringe. Water mostly clear with some algae. Stream HM-231 flows from pond on north end.

Site Photos



East