Construction Notice for Devola – Gorsuch 138 kV Transmission Line Project #2

Case No. 20-0006-EL-BNR

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

Submitted by:
Ohio Power-Company

January 9, 2020

Construction Notice
Ohio Power Company
Devola - Gorsuch 138 kV Transmission Line Project #2

4906-6-05

Ohio Power Company "The Company") provides the following information to the Ohio Power Siting Board ("OPSB") pursuant to Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

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

The Company proposes the Devola - Gorsuch 138 kV Transmission Line Project #2 ("Project"), located in Muskingum Township, Washington County, Ohio. The Project consists of constructing a new single-circuit 138 kilovolt (kV) electric transmission line approximately 0.1 mile in length between the Devola Substation and a tap location along the existing Devola – Riverview 138-kV Transmission Line. The Project is similar to the withdrawn Devola-Gorsuch 138 kV Transmission Line Project, which was approved in Case Number 18-1799-EL-BNR. The Company filed this Project to reflect changes to the route approved in Case Number 18-1799-EL-BNR and to establish Ohio Power Company as the owning entity.

The Project's centerline shifted from the original approved centerline due to access issues created by the Devola Substation's (under construction) grading plan. The original location of Structure 2 would have been inaccessible after grading was finished on the Devola Substation pad. In order to maintain access to Structure 2, the structure was shifted 165 feet east. Structure 1 is located within the Devola Substation pad and was shifted 39 feet west to maintain clearances with the edge of the pad.

The location of the Project is shown on a United States Geological Survey (USGS) Topographic Map as Exhibit 1 in Appendix A.

The Project meets the requirements for a Construction Notice (CN) because it is within the types of projects defined by Item (1) of Appendix A to O.A.C. 4906-1-01, *Application Requirement Matrix For Electric Power Transmission Lines*:

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

(a) Line(s) not greater than 0.2 miles in length.

B(2) Statement of Need

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

AEP Ohio Transmission Company, Inc., Ohio Power Company, Buckeye Power, Inc. ("Buckeye"), and Washington Electric Cooperative ("Washington") (collectively, "the Companies") have agreed to implement a long-term plan aimed at enhancing the reliability of the southeast Ohio area electric transmission and distribution network, referred to as the Southeast Ohio Improvements Program. The existing infrastructure has reached an age and condition where it is in need of rebuild and redesign to meet the needs of customers across the region. The Companies have developed a multi-year construction plan that will replace much of the existing infrastructure in place today.

The focus of the program is to rebuild the area's aged 23-kV infrastructure into a 138-kV network and redesign the system to improve reliability for customers across the region. Bringing additional power sources into the region will improve electric service reliability and provide the electrical capacity for future economic growth. Ultimately, the series of improvements and investment in the area will provide a looped transmission system from the proposed Lamping to Devola 138-kV substations.

This Project will be part of the overall program by connecting future and existing 138-kV transmission lines in the area. The addition of the Devola-Gorsuch 138 kV transmission line into the planned 138-kV network will improve service reliability to regional customers; thereby enhancing service for customers, decreasing power interruptions, providing for more efficient recovery of service when outages occur, and supporting local economic development.

This Project is an ancillary project to the Devola Substation (filed in 18-0034-EL-BLN). This Project was included in the Company's 2019 Long Term Forecast Report FE-T9, on page 99. See Appendix B. This Project is included as PJM number S1125.

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.

Exhibit 2 in Appendix A shows the location of the proposed Project relative to existing electrical transmission and distribution lines.

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 proposed route is approximately 0.1 mile and is located between the Devola Substation (under construction) and a tap location along the existing Devola – Riverview 138-kV Transmission Line as shown on Exhibit 2. The proposed transmission line is intended to provide a single-circuit 138 kV transmission line connection between the Devola Substation and the Devola – Riverview 138-kV Transmission Line. The Company evaluated land options between the Devola Substation and the Devola – Riverview 138-kV Transmission Line to determine the location of the proposed Project.

A formal routing analysis was not needed for this Project because the short distance between the Devola Substation and the proposed Devola – Riverview 138-kV Transmission Line tap (approximately 0.1 mile) yielded only one reasonable route. The proposed route for the Project represented the most appropriate solution for meeting the Company's need in the area. Specifically, the route was chosen because it is adjacent to existing electric transmission lines, minimizes land use impacts (e.g., avoids residential areas), and minimizes ecological impacts (no impacts to streams and wetlands are planned).

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 maintains a website (http://aeptransmission.com/ohio/) on which an electronic copy of this CN is available. A paper copy of the CN will be served to the public library in each political subdivision affected by this Project. The Company also retains ROW land agents who discuss project timelines, construction and restoration activities with affected owners and tenants.

B(6) Construction Schedule

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

Construction is planned to start in June 2020 with an anticipated in-service date of October 2020.

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 3 in Appendix A shows the proposed alignment of the transmission line on an aerial image with clearly marked streets, roads, and highways.

To visit the Project from Columbus, take I-70 east for approximately 80 miles then merge onto I-77 south. Take I-77 south for approximately 38 miles to Exit 6, OH-821 Marietta/Lower Salem. Turn right onto OH-821/Cambridge Road and travel 3 miles then turn left onto OH-60 south for 0.6 miles. Turn left onto Colegate Drive and travel 0.8 mile before turning right onto Mill Creek Road. Follow Mill Creek Road for 0.3 mile to the Mill Creek Substation located on the right side of the road. The proposed electric transmission line is located immediately to the west of the Devola Substation site (which is located approximately 0.4-mile northwest of Mill Creek Substation at the top of the hill). The Project can also be reached by accessing the Devola Substation via the access road.

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.

Construction of the 0.1-mile proposed route for the Project will occur on property owned by the Company and across one undeveloped parcel (Parcel Identification: 240039620001), which the Company has acquired an easement for.

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 will consist of a single-circuit transmission line designed to operate at 138 kV and require a 100-foot wide right-of-way.

The Project will include two (2) custom monopole steel structures with concrete foundations.

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. The discussion shall include:

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

Not applicable. The proposed Project is not located within 100 feet of an occupied residence or institution.

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

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

Not applicable. The proposed Project is not located within 100 feet of an occupied residence or institution.

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

The estimated capital cost of the project.

The capital cost estimate for the proposed Project, comprised of applicable tangible and capital costs, is approximately $1,000,000.

B(10) Social and Economic Impacts

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

B(10)(a) Operating Characteristics

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

The Project is located within Muskingum Township, Washington County, Ohio, approximately 2.4 miles north of the City of Marietta. The proposed route crosses though vacant land down a hill. The closest non-vacant land use is a residence located approximately 675 feet to the south of the Project's centerline (approximately 1,215 feet to the southwest of the Devola Substation). Dense mature vegetation separates the residence and the proposed transmission line, which provide visual screening of the Project from the residence.

The proposed Devola - Gorsuch 138 kV transmission line will not impact existing land uses or future land use patterns near the site; furthermore, it will be strategically located adjacent to an existing electric transmission line corridor thereby minimizing visual impacts to the area. Land use within the Project area is comprised of disturbed land from the Devola Station and the existing Mill Creek-Riverview transmission line ROW.

There are no cemeteries, churches, schools, or other community facilities located within 1,000 feet of the proposed Project location. (Exhibit 2 in Appendix A).

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 Company's consultant contacted the Washington County Auditor to obtain information about Agricultural District lands and received the requested data via email on November 13, 2019. The proposed Project will be constructed on privately owned parcels, which are not listed by the Washington County Auditor's Office as part of a registered agricultural district. These parcels are not currently used for agricultural production.

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.

In November 2019, the Company's consultant reviewed the Project for a cultural resources impact assessment. The Project area was examined using records available through the Ohio Historic Preservation Office (OHPO). A portion of the Project was previously examined through Phase I cultural resources investigations associated with the Bell Ridge - Devola 138 kV Transmission Line Project and Devola Substation Project. Together, these assessments address archaeological and architectural resources in the Project area. A literature review indicated that there are no formally recorded resources located in the Project area.

Phase I archaeological surveys for Bell Ridge – Devola 138 kV Transmission Line Project and Devola Substation Project were conducted in 2017 utilizing both pedestrian reconnaissance and shovel testing within the survey areas. No archaeological sites were identified within the current Project area. The Project area exhibits excessive slope and eroded or disturbed soils; therefore, the Company's consultant recommends no further archaeological work and a consideration of "no historic properties or landmarks affected" is appropriate for the Project.

The architectural and historical resources surveys conducted in the Project area did not result in the identification of any architectural and historic resources within the Project area. The Company's consultant recommends a finding of "no historic properties affected," and does not recommend any further cultural resource management work for the Project.

Reports for Bell Ridge - Devola 138 kV Transmission Line Project were submitted to OHPO and concurrence was received on February 12, 2018 (Appendix C). The Report for the Devola Substation Project was submitted to OHPO and received concurrence on January 11, 2018 (Appendix C).

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.

If necessary, a Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction stormwater 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 Project as currently planned would not impact any wetlands or waterways. (See Appendix D).

The Project is not located within a Federal Emergency Management Agency (FEMA) 100-year floodplain area. Therefore, no floodplain permitting is required for the Project. 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 (ODNR) Division of Wildlife (DOW) was initiated to obtain Ohio Natural Heritage Database records within a 1-mile radius of the proposed Devola Station Study Area. ODNR records of state and federally listed species, provided November 20, 2017, indicates that 29 state- or federally-listed species have known occurrences within a 1-mile radius of the Project.

Of these 29 species, potential habitat for only two of the species, Indiana bat (*Myotis sodalis*) and black bear (*Ursus americanus*), were identified within the Project study area. Due to the nature of the Project, adherence to seasonal tree cutting requirements during construction, and the mobility of the species, ODNR concurs that this Project is not likely to impact any of the listed species. Information on species obtained from U.S. Fish and Wildlife Service (USFWS) county lists and the ODNR-DOW Ohio Natural Heritage Database is provided in the Ecological Resources Inventory Report in Appendix D.

The USFWS *Federally Listed Species by Ohio Counties January 2018* (available at https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyList29Jan2018.pdf) was reviewed to determine the threatened and endangered species currently known to occur in Washington County, Ohio. This USFWS publication listed the following threatened or endangered species as occurring in Washington County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis*

septentrionalis; federally threatened), fanshell (*Cyprogenia stegaria*; federally endangered), pink mucket pearly mussel (*Lampsilis abrupta*; federally endangered), sheepnose (*Plethobasus cyphyus*; federally endangered), snuffbox (*Epioblasma triquetra*; federally endangered).

As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office on August 30th, 2017 seeking technical assistance on the Project for potential impacts to threatened or endangered species. The USFWS indicated that the proposed Project is within the range of the Indiana bat and northern long-eared bat in Ohio but not within known Indiana bat buffers. The entire Project is located on the station pad for the Devola Station or within existing ROW of the Mill Creek-Riverview 138 kV transmission line. As such, tree clearing has occurred within the Project area as part of the Devola Station (Case No. 18-0034-EL-BLN) project. The USFWS letter did not include comments specific to the other federally listed species.

Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated. 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.

No wildlife management areas or nature preserve lands are located within 1,000 feet of the Project. Correspondence received from the USFWS (Appendix D) indicates that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project area.

The FEMA Flood Insurance Rate Map (FIRM) was consulted to identify any floodplains/flood hazard areas that have been mapped in the Project study area. Based on this map, no mapped FEMA floodplains are in the Project area; therefore, no floodplain permits will be required for this Project.

A review of the National Wetlands Inventory (NWI) database indicated that there are no NWI-mapped wetlands present within the Project area. Wetland and waterbody delineations as well as a general habitat assessment surveys were completed by the Company's consultant within the Project study area on January 23, 2018, and October 10, 2018. The results of the wetland and waterbody delineations are presented in the Ecological Resources Inventory Report included in Appendix D. Pursuant to the aforementioned Ecological Resources Inventory Report, one wetland was delineated within the Project study area. There are five streams (unnamed tributaries to Muskingum River) within the Project study area. No in-water work is proposed as part of the Project and therefore impact to any of the delineated features is not anticipated. The USFWS recommends that proposed developments avoid and minimize water quality impacts and impacts

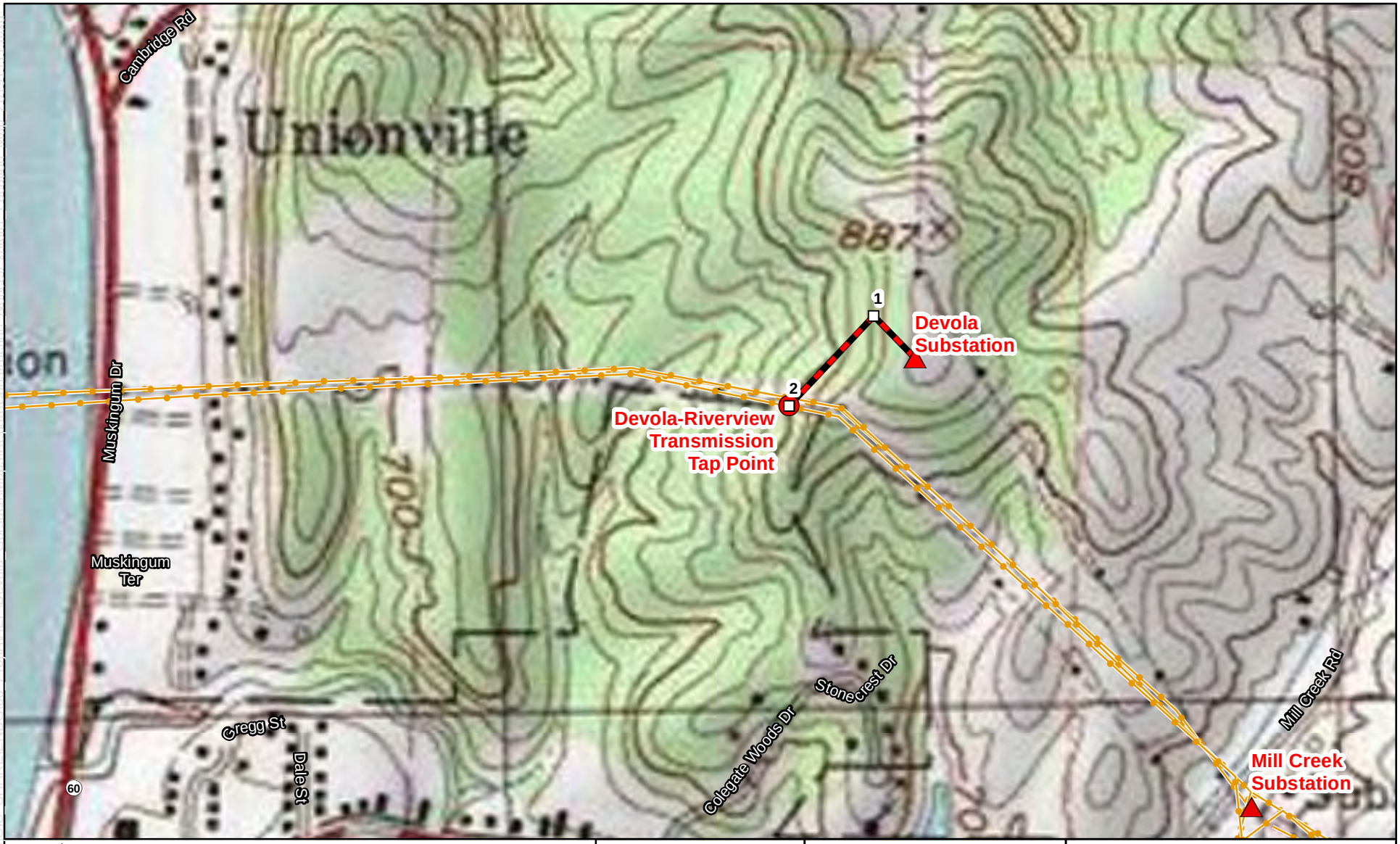
to high quality fish and wildlife habitats including preserving natural buffers around streams and wetlands to enhance beneficial functions. The appropriate best management practices will be deployed to achieve this objective.

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

- Devola-Riverview Transmission Tap Point
- Substation
- Structure
- Devola - Gorsuch 138 kV Transmission Line
- Existing Transmission Line (138 kV)

BASE MAP SOURCE:
USGS 7.5-minute
Topographic Quadrangles:
Marietta

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:8,000

November 11, 2019

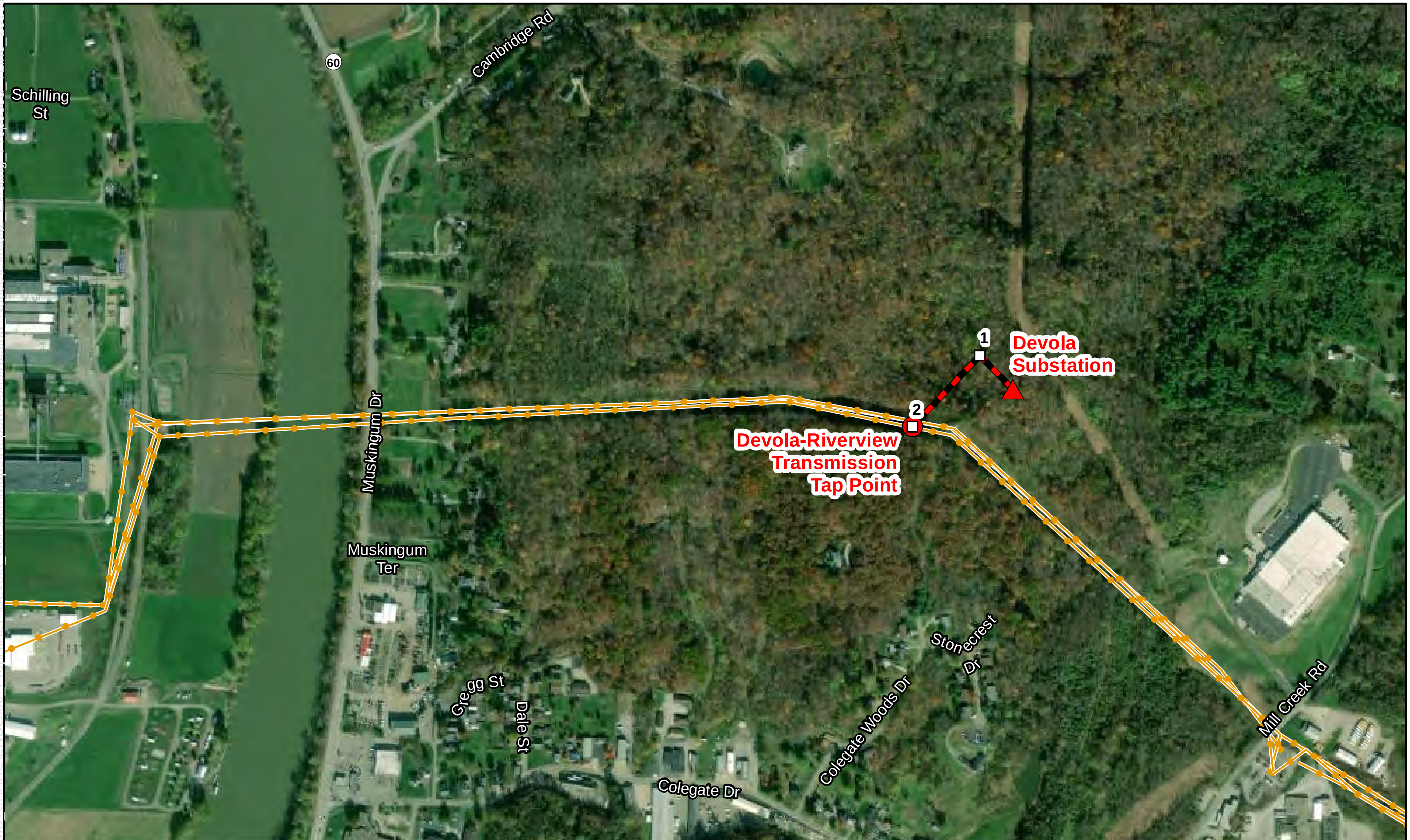
LOCATOR MAP

EXHIBIT 1
LOCATION MAP

AEP OHIO

Devola-Gorsuch 138 kV Transmission Line

0 500 1,000
Feet



Legend

- Substation
- Devola-Riverview Transmission Tap
- Structure
- Devola - Gorsuch 138 kV Transmission Line
- Existing Transmission Line (138 kV)

BASE MAP SOURCE:
ESRI World Imagery 2016

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:6,000

November 11, 2019

LOCATOR MAP

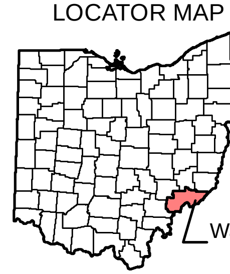


EXHIBIT 2
EXISTING AND PROPOSED TRANSMISSION LINE MAP

Devola-Gorsuch 138 kV Transmission Line

0 500 1,000
Feet

Legend

- Substation
- Devola-Riverview Transmission Tap Point
- Devola - Gorsuch 138kV Transmission Line
- Existing Transmission Line (138kV)
- Stream (NHD)

BASE MAP SOURCE:
ESRI World Imagery 2016

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:24,000

November 15, 2019

LOCATOR MAP

EXHIBIT 3
VICINTY MAP

AEP OHIO

Devola-Gorsuch 138kV Transmission Line

0 1,000 2,000
Feet

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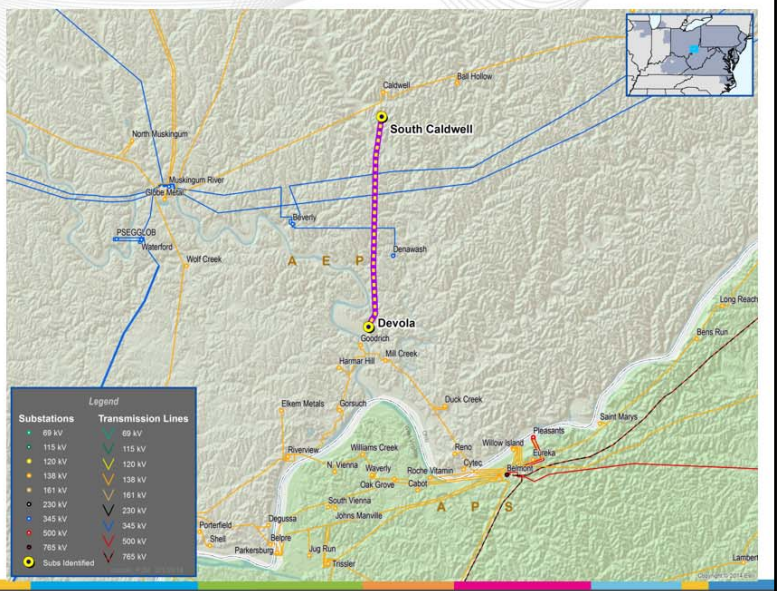
Appendix B Long Term Forecast Report and PJM Submittal

PUCO FORM FE-T9
AEP OHIO
SPECIFICATIONS OF PLANNED TRANSMISSION LINES

1.	**LINE NAME AND NUMBER:**	Devola - Gorsuch (S1125)
2.	**POINTS OF ORIGIN AND TERMINATION**	Devola, Gorsuch; INTERMEDIATE STATION - RJF, Harmar Hill
3.	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	0.3 miles new construction / 100 ft / 1 circuit
4.	**VOLTAGE: DESIGN / OPERATE**	138kV / 138kV
5.	**APPLICATION FOR CERTIFICATE:**	CN, December, 2018
6.	**CONSTRUCTION:**	2020
7.	**CAPITAL INVESTMENT:**	$0.7M
8.	**PLANNED SUBSTATION:**	NAME - N/A; TRANSMISSION VOLTAGE - N/A; ACREAGE - N/A; LOCATION - N/A
9.	**SUPPORTING STRUCTURES:**	Steel H-frame
10.	**PARTICIPATION WITH OTHER UTILITIES**	N/A
11.	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	This is the relocate of the Gorsuch Mill Creek line into the new, adjacent Devola station.
12.	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Foregoing this project would perpetuate the Marietta's 23kV reliability problems.
13.	**MISCELLANEOUS:**	N/A

AEP Transmission Area

- **Supplemental Project**
- Construct a new 138 kV transmission network to support the retirement of AEP Ohio's deteriorated 23 kV distribution system in Washington County. Marietta North will build new 138 kV between South Caldwell and Devola stations.(S****)
- Reliability improvement
- Estimated Project Cost: $103.3M
- Projected IS Date: 6/1/2021



NEED????

- Why we need to convert to a higher voltage? Why not 69 kV?
  - Load increases recently seen in the area support 138 kV solution.
  - The 69 kV operated system would be built to 138 kV standards. Building at 138 kV eliminates the need for the co-ops to buy dual voltage transformers.
  - There is no other 69 kV transmission in the area.
- Are there any load projections for the area that we can share with PJM? Washington Electric Coop and AEP Ohio provided load projections. We can share with PJM, but not made public.
- What is the age of the 23 kV network? 70 to 80 years. How is the performance? It is on the top 10 worst performers for the Washington Electric Coop for number of outages. *Buckeye Power provided a list.* Can we list issues that we have experienced in the past 5-10 years? Tree out of ROW in the line. Bad insulators. Static wire fell into phase. Broken cross arms. Broken poles. Conductor down. Much more.*Buckeye Power provided a list.*

Appendix C OHPO Concurrence Letter

OHIO HISTORY CONNECTION

In reply refer to
2017-WAS-40685

January 11, 2018

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

RE: Devola Substation Project, Muskingum Township, Washington County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received on December 20, 2017 regarding the proposed Devola Substation Project, Muskingum Township, Washington County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-4). 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 (16 U.S.C.470 [36 CFR 800]).

The following comments pertain to the *Phase I Archaeological Investigations for the 7 ha (17.4 ac) Devola Substation Project in Muskingum Township, Washington County, Ohio* by Weller & Associates, Inc. (2017).

A literature review, visual inspection, shovel probe, and shovel test unit excavation was completed as part of the investigations. No previously identified archaeological sites are located within the project area. No archaeological sites were identified during this survey. The Mills' *Archaeological Atlas of Ohio* did note an excavated mound located within the vicinity of the project area but no mound or evidence of a previous mound was identified during survey. Based on the information provided, we agree with your determination of no historic properties affected and no further archaeological work is necessary.

The following comments pertain to the *History/Architecture Investigations for the 7 ha (17.4 ac) Devola Substation Project in Muskingum Township, Washington County, Ohio* by Weller & Associates, Inc. (2017).

The investigations consisted of a systematic survey of all properties fifty years of age of older that are situated within 1,000' of the proposed project site. Six properties fifty years of age or older were identified within the Area of Potential Effects that may have a direct line-of-sight to the project.

It is Weller's recommendation that none of the six identified properties are eligible for inclusion in the National Register of Historic Places (NRHP) due to a lack of associative significance, a loss of integrity, or a lack of character defining features. Our office agrees with Weller's recommendations regarding eligibility.

The results of the architectural investigation identified no historic properties located within the APE that exhibit potential significance for inclusion in the NRHP. Therefore, we agree that the project as proposed will have no effect on historic properties.

RPR Serial No: 1071675-1071676

Based on the information provided, we agree the project will not affect historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted.

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

cc: Ron Howard, AEP (rmhoward@aep.com)

RPR Serial No: 1071675-1071676

OHIO HISTORY CONNECTION

In reply, refer to
2018-WAS-40808

February 12, 2018

Ms. Amy C. Favret
CH2M Hill Engineers, Inc.
400 E. Business Way, Suite 400
Cincinnati, OH 45241
amy.favret@ch2m.com

RE: Bell Ridge to Devola 138 kV Transmission Line Project, Lawrence, Fearing, and Muskingum Townships, Washington County, Ohio

Dear Ms. Favret:

This letter is in response to the correspondence received on January 16, 2018, January 29, 2018 and the revised archaeology report received February 8, 2018 regarding the proposed Bell Ridge to Devola 138 kV Transmission Line Project, Lawrence, Fearing, and Muskingum Townships, Washington County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-4). 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 Reconnaissance for American Electric Power Bell Ridge to Devola 138 kV Transmission Line Project in Lawrence, Fearing and Muskingum Townships, Washington County, Ohio* by CH2M (2018).

A literature review, visual inspection, pedestrian survey, and shovel test unit excavation was completed as part of the investigations. No previously inventoried Ohio Archaeological Inventory (OAI) sites are located within the project area. Two (2) new OAI sites were identified during the survey. OAI#33WN0502 is a historic artifact site scatter, likely a dumping location associated with the original house on the property, built in the 1930's, which is no longer standing. OAI#33WN0503 is a historic artifact site scatter and partial brick wall pared with concrete. The sites are not recommended as eligible for listing in the NRHP. Based on the information provided, we agree the archaeological sites are not eligible for listing in the NRHP and no further archaeological work is necessary.

Please complete your associated site inventory as soon as possible. Project associated inventory should be completed and submitted concurrent with submission of your survey documentation for our comments. Following IForm submission procedure, please send a notification to the survey manager (archsurvey@ohiohistory.org, or directly at beberhard@ohiohistory.org) so that the manager is aware your inventory is prepared, complete, and ready for review.

The following comments pertain to the *Architectural and Historic Resources Report: AEP Ohio Transco Bell Ridge to Devola 138 kV Transmission Line Project, Lawrence, Fearing and Muskingum Townships, Washington County, Ohio* by CH2M (2018).

The investigations included a background literature review and systematic survey of properties fifty years of age or older that are situated within 1,000' on either side of the proposed centerline. Fourteen architectural and historical resources were identified within the APE. CH2M recommends that none of

RPR Serial No: 1072031, 1072503

these properties are eligible for listing in the National Register of Historic Places (NRHP) due to a lack of architectural and/or historic significance, and lack of integrity. Our office agrees with CH2M's recommendations regarding eligibility.

The results of the architectural investigation identified no historic properties located within the APE that exhibit potential significance for inclusion in the National Register of Historic Places. Therefore, we agree that the project as proposed will have no effect on historic properties.

Based on the information provided, we agree the project will not affect historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted.

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

cc: Ron Howard, AEP (rmhoward@aep.com)

RPR Serial No: 1072031, 1072503

Appendix D Ecological Resources Inventory Report

Ecological Resources Inventory Report

American Electric Power

Proposed Devola-Gorsuch 138 kV Transmission Line Project

Washington County, Ohio

Prepared for

October 2018

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Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

AEP	American Electric Power
CWA	Clean Water Act
DBH	Diameter at breast height
ESA	Environmental study area
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
ID	Identification
Jacobs	Jacobs Engineering Group, Inc.
kV	Kilovolt
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PHWH	Primary Headwater Habitat
Project	Proposed Devola-Gorsuch 138 kV Transmission Line Project
ROW	Right-of-way
TNW	Traditionally Navigable Water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 Introduction

This Ecological Resources Inventory Report summarizes the results of the wetland and waterbody delineation conducted on January 23, 2018 and October 10, 2018 in Washington County, Ohio by Jacobs Engineering Group, Inc. (Jacobs) for the American Electric Power (AEP) Proposed Devola-Gorsuch 138 kV Transmission Line Project (Project).

AEP is proposing to construct a new segment of 138 kV electric transmission line (0.1-mile length) that will connect the future Devola Substation and the existing Devola – Riverview 138 kV transmission line to the west. This report covers the approximately 6.5-acre environmental study area (ESA) immediately surrounding the proposed transmission line connection.

- Figure 1 provides an overview map of the study area based on a U.S. Geological Survey (USGS) topographic map.
- Figures 2 provides the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, and Table 3-1 lists the soils types identified within the study area.
- Figures 3 provides National Wetland Inventory (NWI) wetland information and National Hydrology Dataset (NHD) stream information identified within the study area.
- Figure 4 provides the field delineated wetlands and waterbodies identified within the study area.
- Appendix A contains Ohio Environmental Protection Agency Primary Headwater Habitat Evaluation Index (HHEI) forms.
- Appendix B contains United States Army Corps of Engineers Wetland/Upland Determination Forms.
- Appendix C contains Ohio Environmental Protection Agency Ohio Rapid Assessment Method (ORAM) Forms.
- Representative photo documentation is provided in Appendix D.
- Appendix E contains threatened and endangered species consultation letter responses from the Ohio Department of Natural Resources (ODNR) and United States Fish and Wildlife Service (USFWS).

2 Background Information

This section describes the Project environmental study corridor (ESA) and methodology used during the wetland and waterbody delineation field surveys.

2.1 Environmental Study Area

The proposed transmission line to be constructed extends approximately 0.1 mile west of the future Devola Substation, near the community of Devola, Ohio. The ESA covers approximately 6.5 acres area between the Devola Substation and the nearest existing Devola - Riverview 138 kV transmission line structures to the west. The right-of-way (ROW) proposed for this Project is 100-feet wide.

The Project is located within the Marietta Plateau region of the Appalachian Plateaus physiographic province (ODNR, 1998). The Marietta Plateau region is characterized by high relief and elevations between 515 and 1,400 feet above sea level. Pennsylvanian-age Upper Conemaugh Group through Permian-age Dunkard Group cyclic sequences of red and gray shales, siltstones, sandstones, limestone, and coal characterize the geology of the area. Pleistocene-age Minford clay, red and brown silty clay loam colluvium, and landslide deposits are also notable geologic characteristics of the area (ODNR, 1998).

Review of the USGS 7.5-minute topographic map of the area (USGS, 1975) indicates the ESA has a rolling hill topography ranging from 680 to 870 feet above sea level. The future Devola Substation site is located on a ridge top and the proposed transmission line connection will meet a slightly lower elevation ridge where the existing transmission line structures reside.

Land use and vegetation communities observed within the ESA includes existing utility ROW, scrub-shrub, and upland forest, in addition to the identified waterbodies.

2.1.1 Annual Precipitation

Historic monthly rainfall data for Marietta, Ohio from the National Oceanic and Atmospheric Administration (NOAA) was reviewed prior to surveys. Precipitation recorded in Marietta, Ohio, was above normal for November and below normal for December 2017 leading up to the January 2018 surveys. Precipitation was normal in August and above normal in September leading up to the October 2018 surveys (Table 2-1; NOAA, 2017-2018). The total rainfall for this period leading up to survey was approximately 4.4 inches greater than the average. This information was taken into consideration during survey.

Table 2-1. Precipitation in Marietta, Ohio
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

2017/2018 Precipitation Data	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Total
Marietta Monthly Sum [1, 3]	4.68	1.77	4.07	7.59	3.86	5.34	M7.32	9.44	2.77	4.64	7.46	51.62
Marietta Normal Precip. [2, 3]	2.26-3.69	2.58-3.92	2.10-3.62	1.96-3.49	2.73-4.42	2.28-3.71	3.00-4.82	2.83-5.45	3.33-5.17	2.74-4.87	2.35-4.07	28.16-47.23
Monthly climatic condition	Above Normal	Below Normal	Above Normal	Above Normal	Normal	Above Normal	Above Normal	Above Normal	Below Normal	Normal	Above Normal	Above Normal

[1]NOAA Monthly Weather Summary 2017-2018 (Marietta, OH)

[2] Historic precipitation is based on measurements from 1971 to 2000.

[3]Displayed in inches

[M]Missing Data

2.1.2 Drainage Basins

The ESA is within the Muskingum Watershed 8-digit Hydrologic Unit Code (HUC 05040004) and crosses one 12-digit HUC (05040041204) Devola Run-Muskingum River (USEPA, 2017).

2.1.3 Traditional Navigable Waters

The U.S. Environmental Protection Agency (USEPA) and USACE assert jurisdiction over "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide" (USACE and USEPA, 2008). The closest traditional navigable waters (TNW) and Section 10 stream to the Project area is the Muskingum River (USACE, 2009 and 2016). The five streams within the ESA are unnamed tributaries to the Muskingum River.

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 or waterbodies within the ESA:

- Aerial photo-based maps (Google, 2016)
- USGS topographic maps (USGS, 1975)
- NRCS Web Soil Survey (NRCS, 2016)
- NWI maps (USFWS, 2015)
- National Hydrography Dataset (NHD) (USGS, 2015)

According to the NRCS soil survey of Washington County (NRCS, 2016), three soil map units exist within the ESA. None of the soil map units are listed as hydric or predominantly hydric or predominately non-hydric; all three of the soil map units are listed as not hydric (Figure 2; Table 3-1). NRCS data indicate that not hydric soils comprise approximately 6.5 acres (100 percent) of the ESA.

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.

The NWI database (USFWS, 2015) identifies the type of wetland or open water present at a location using the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin et al., 1979). The NWI data indicates that no NWI mapped features are located within the ESA (USFWS, 2015).

Table 3-1. Hydric Soil Ratings Summary
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Abbreviation	Soil Map Unit Name	Hydric Classification	Acres within Area of Delineation	Percent within Area of Delineation
DSG	Dekalb and Gilpin stony soils, 25 to 70 percent slopes	Not Hydric	0.10	2%
UpD	Upshur silty clay loam, 12 to 18 percent slopes	Not Hydric	0.83	13%
UsF	Upshur-Gilpin complex, 25 to 35 percent slopes	Not Hydric	2.02	31%
VaF	Vandalia silty clay loam, 25 to 35 percent slopes	Not Hydric	3.56	55%
Grand Total			6.51	

Source: Soil Survey Staff, NRCS, USDA. 2016. Soil Survey Geographic (SSURGO) Database for Ohio.

3.2 Field Survey Methodology

Wetland boundaries, if present, 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: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012). Wetland delineation data if present was recorded on the USACE Regional Supplement wetland determination data forms.

Representative upland data points were recorded during the wetland delineation to determine the presence/absence of wetlands and/or document upland conditions within the ESA. These 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.

Jurisdictional streams were identified as those waters that possessed a defined bed and bank and OHWM indicators and lacked a dominance of upland vegetation in the channel. For these waterbodies, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

The outer boundaries of each wetland and waterbody within the ESA were delineated and recorded using handheld global positioning system (GPS) units. As wetland and waterbody features were collected, they were each assigned a unique feature identification (ID). Each feature collected received a unique feature identifier of DLLNNN, as outlined below. When data point features were associated with wetlands or their associated upland data points, comments were recorded on the data sheets.

D = Data Type (W for Wetland; S for Stream; P for Pond; and DP for Data Point)

LL = Initials of Field Survey Lead

NNN = Feature Number (for each feature of a specific ID combination)

According to recent guidance from the USEPA and USACE, wetlands that are adjacent to or have a significant nexus to TNWs are regulated under Sections 401 and 404 of the CWA (USEPA and USACE, 2008). A significant nexus must meet criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. A significant nexus includes consideration of both hydrologic and ecologic factors. The closest downstream TNW to the ESA is the Muskingum River, which flows approximately 0.6 mile west of the ESA. All the streams in the ESA are tributaries to the Muskingum River.

The OEPA also requires classification of streams and wetlands, if present, according to OEPA methods in order to establish the "quality" of these waterbodies in accordance with the Ohio Water Quality Standards (Ohio Administrative Code [OAC] Section 3745, 2003). The standards dictate the level of permitting and mitigation required for impacts to the wetlands. Accordingly, each identified wetland was evaluated in accordance with the ORAM, developed by OEPA (Mack, 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000).

The streams identified within the ESA have drainage area smaller than one square mile. In accordance with the Ohio Water Quality Standards, these streams were evaluated using the OEPA Headwater Habitat Evaluation Index (HHEI; OEPA, 2012). The HHEI classifies streams based on habitat characteristics. Utilizing the HHEI scores and Jacobs' professional judgment, the headwater streams were classified into one of three categories:

- Ephemeral (Primary Headwater Habitat [PHWH] Class I)
- Intermittent (PHWH Class II/III)
- Perennial (PHWH Class III)

4 Field Survey Results

Five streams and one wetland were delineated within the ESA. These features are displayed on Figure 4.

4.1 Wetland and Waterbody Summary

Summary information for the wetlands and waterbodies within the ESA are provided in Tables 4-1 and Table 4-2 respectively. The length (feet) of the streams and acreages of the wetland within the ESA are included. All of the identified streams join together with stream SBR001 and continue off site to the southwest prior to joining with downstream tributaries of the Muskingum River.

4.1.1 Wetlands

One wetland totaling 0.02 acre was delineated within the ESA, as depicted in Figure 4. The delineated wetland was identified as a PEM wetland. Detailed information for the delineated wetland within ESA is provided in Table 4-1.

Table 4-1: Detailed Delineated Wetland Table

Proposed Devola-Gorsuch 138kV Transmission Line, Washington County, Ohio

Wetland ID	Location		Wetland Type[1]	Area (ac)[2] In ESA	ORAM Score/Category	Jurisdictional Status[3]	Connecting Waterbody
	Latitude	Longitude					
WBR001	39.448200	-81.450500	PEM	0.02	26	Jurisdictional	SBR001

[1]Cowardin et al. 1979.

[2]This acreage only corresponds to the area delineated within the environmental survey area.

[3]Final determination of jurisdictional status lies with the USACE, Louisville District.

Wetland WBR001 appears to be hydrologically connected to surface waters that are tributaries to the Muskingum River, and therefore will likely be considered jurisdictional by the USACE. Completed USACE wetland and upland determination forms are provided in Appendix B. Representative photographs were taken of each wetland during the field survey and are provided in Appendix D.

4.1.2 Wetland ORAM Results

One Category 1 wetland was identified within the ESA. No Category 2 or Category 3 wetlands were identified within the ESA. A completed ORAM form is included in Appendix C.

The delineated wetland, WBR001, was classified as a Category 1 PEM (Palustrine Emergent) wetland. This wetland was classified as a Category 1 wetland based on the ORAM score of 26. Generally, category 1 wetlands score 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 second growth vegetation, and the presence of invasive species.

4.1.3 Waterbodies

A total of five streams, were identified within the ESA. All streams are unnamed tributaries to the Muskingum River. All five streams were determined to have ephemeral flow based on the HHEI scores, field observations, and the USGS topographic maps (Figure 1). All streams appear to have significant nexus with a TNW (the Muskingum River) and are therefore likely to be considered jurisdictional by the USACE. It is noted that the USACE and OEPA make the final determination of significant nexus with a TNW. Completed HHEI forms are provided in Appendix A and representative photographs of the streams are provided in Appendix D.

Table 4-2. Project Study Area Stream Summary

Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Feature ID	Location	Waterbody Name	Flow Regime[1]	12-Digit HUC	Drainage Area (square miles)	Approximate Length Delineated within the Study Area (feet)	RPW or Non-RPW[2]	OEPA Aquatic Life Use Designation[3]	HHEI Score[4]	Preliminary OEPA Stream Designation[5]	401 Water Quality Certification for Nationwide Permit Eligibility[6]	TNW Connection	Brief Description of Stream Condition
SBR001	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	610	Non-RPW	N/A	29	Class I	Ineligible	Muskingum River	stream flows through transmission line ROW
SBR002	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	79	Non-RPW	N/A	24	Class I	Ineligible	Muskingum River	natural channel
SJF100	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	165	Non-RPW	N/A	17	Class I	Ineligible	Muskingum River	natural channel
SJF101	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	197	Non-RPW	N/A	17	Class I	Ineligible	Muskingum River	natural channel
SJF102	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	155	Non-RPW	N/A	17	Class I	Ineligible	Muskingum River	natural channel

Notes:

[1] Flow regime is defined as perennial, intermittent, or ephemeral. This determination was interpreted using field observations, USGS topographic maps, and the OEPA HHEI, as appropriate.

[2] Intermittent and perennial streams were recorded as RPWs; ephemeral streams were recorded as non-RPWs.

[3] OEPA Aquatic Life Use Designation based on OAC Chapter 3745-1 Water Quality Standards

[4] HHEI narrative rating based on OEPA 2009. The HHEI score was based on site observations and conditions during the wetland and stream delineation.

[5] Primary headwater habitat (PHWH) class for streams with watersheds smaller than 1 square mile is defined based on HHEI scores according to OEPA 2002.

[6] Eligibility based on OEPA Division of Surface Water Stream Eligibility Web Map (2017 Issuance)

Abbreviations:

HHEI	headwater habitat evaluation index	Non-RPW	non-relatively permanent water	TNW	traditional navigable waters
HUC	hydrologic unit code	OEPA	Ohio Environmental Protection Agency	UNT	unnamed tributary
N/A	not applicable	RPW	relatively permanent water		

4.2 Land Use and Habitat Summary

Jacobs field biologists conducted a general habitat survey in conjunction with the wetland and waterbody field surveys during the October 2018 site visit. The ESA comprises early successional forest, existing transmission right-of-way (ROW), and scrub-shrub habitats. Additional details regarding the general habitat observed within the ESA is described below.

The early successional forest is predominantly found along the northern and southern edges of the ESA. Dominant species include white oak (*Quercus alba,* FACU), American beech (*Fagus grandifolia,* FACU*)*, sugar maple (*Acer saccharum,* FACU), Ohio buckeye (*Aesaulus glabra*, FACU) bitternut hickory (*Carya cordiformis*, FACU), and shagbark hickory (*Carya ovata*, FACU).

The scrub-shrub area, which makes up the majority of the ESA is mostly contained within the existing transmission ROW and dominated by shrub species such as multiflora rose (*Rosa multiflora,* FACU), Allegheny blackberry (*Rubus allegheniensis*, FACU), honeysuckle shrub (*Lonicera morrowii,* FACU), and Virginia pine (*Pinus virginiana,* FACU).

5 Protected Species

Jacobs reviewed the USFWS Ohio Ecological Services Office website (USFWS, 2015a) for information concerning which federally-listed species are known to occur, or to potentially occur, in Washington County. In addition, Jacobs submitted an Ohio Natural Heritage Database Request to the ODNR Division of Wildlife (DOW) on August 30, 2017 for information on known occurrences of federally-listed and state-listed species within a one-mile radius of the Devola substation LOD and the identified buffer covers the entire ESA. Separate requests were submitted to the ODNR and USFWS regarding the proposed ESA. A response from the ODNR was received on November 20, 2017, and a response from the USFWS was received on September 11, 2017. Threatened and endangered species coordination responses are provided in Appendix E.

5.1 Federal Agency Coordination Summary

Federally-listed species information is summarized below in Table 5-1. Table 5-1 outlines federally-listed species identified by the USFWS (USFWS, 2016) as occurring, or potentially occurring in the Project ESA in Washington County, Ohio.

Table 5-1. Federally-Listed Species Recorded in Washington County
Federal Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	Federal Status	General Habitat Notes	Recorded Location within Project Vicinity	Potential Habitat in ESA
Mammals				
Indiana bat *Myotis sodalis*	Endangered	Hibernacula = Caves and mines; Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests.	No	Yes
Northern long-eared bat *(Myotis septentrionalis)*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During late spring and summer, roosts and forages in upland forests.	No	Yes

5.2 State Agency Coordination Summary

State-listed species information is summarized below in Table 5-2. Table 5-2 outlines state-listed species identified by the ODNR (ODNR, 2016) as being located within a one-mile radius of the ESA. Species-specific surveys were not conducted for the state-listed species discussed in Table 5-2. A copy of the protected species comments from ODNR is provided in Appendix E.

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA

State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Mammals				
Indiana bat *(Myotis sodalis)*	Endangered	Hibernacula = Caves and mines; Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests.	No hibernacula of Indiana bats have been documented in Washington County.	Yes
Black bear *(Ursus americanus)*	Endangered	Thick, forested areas with an abundance of food resources.	No locations reported. Per ODNR, due to mobility of this species it is unlikely to be impacted.	Yes
Fishes				
Blue sucker (Cycleptus elongates)	Endangered	Deep swiftly flowing channels of large rivers. Lower Scioto River to the Ohio River	Yes, within one-mile radius of the ESA.	No
Western banded killifish (Fundulus diaphanous menona)	Endangered	In areas of rooted aquatic vegetation, clear waters, and substrates of clean sand and organic debris. No silt.	Yes, within one-mile radius of the ESA.	No
Northern madtom (Noturus stigmosus)	Endangered	Deep swift riffles of large rivers. Found in and around cobbles and boulders. Muskingum, Scioto, and Little Miami River Drainages.	Yes, within one-mile radius of the ESA.	No
Ohio Lamprey (Ichthyomyson bdellium)	Endangered	Found in clear brooks with fast flowing water with gravel or sand. Slow moving water with soft substrate bottoms in medium to large streams and in large bodies of water.	Yes, within one-mile radius of the ESA.	No
Paddlefish (Polyodon spathula)	Threatened	Found in the Ohio River and its larger tributaries. They live in slow moving pools and backwaters.	Yes, within one-mile radius of the ESA.	No

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA

State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Mountain madtom (Noturus eleutherus)	Threatened	Found in deep swift riffles of larger rivers. They prefer substrates such as cobbles and boulders.	Yes, within one-mile radius of the ESA.	No
River darter (Percina shumardi)	Threatened	Found in very large rivers with swift currents. They live in areas over a gravel or rocky bottom in depth of 3 feet or more.	Yes, within one-mile radius of the ESA.	No
Channel darter (Percina copelandi)	Threatened	Found in large, course sand or fine gravel bars in large rivers along the shore of Lake Erie.	Yes, within one-mile radius of the ESA.	No
Tippecanoe darter (Etheostoma tippecanoe)	Threatened	Found in medium to large streams and rivers in the Ohio River drainage. They live in riffles or moderate current with substrates of gravel and small cobbles.	Yes, within one-mile radius of the ESA.	No
Freshwater Mussels				
Sheepnose (Plethobasus cyphus)	Endangered	Found in larger rivers and streams where they live in shallow areas with moderate to swift currents. Found in the Ohio River and tributaries	Yes, within one-mile radius of the ESA.	No
Fanshell (Cyprogenia stegaria)	Endangered	Found in medium to large rivers and buries itself in snad or gravel in deep water. Found in the Ohio River and tributaries	Yes, within one-mile radius of the ESA.	No
Pick mucket (Lampsilis orbiculate)	Endangered	Found in mud and sand substrate and in shallow riffles and shoals free of silt. Found in major rivers and tributaries and the Ohio River.	Yes, within one-mile radius of the ESA.	No
Snuffbox (Epiloblasma triquetra)	Endangered	Found in small to medium sized streams in areas with a swift current. Found in Ohio River tributaries.	Yes, within one-mile radius of the ESA.	No

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA

State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Washboard (Megalonaias nervosa)	Endangered	Found in large rivers with a habitat of slow currents with sand, gravel, and mud substrates. Found in the Ohio River and tributaries and man-made lakes and ponds.	Yes, within one-mile radius of the ESA.	No
Butterfly (Ellipsaria lineolata)	Endangered	Found in larger rivers with swift currents and sand or gravel substrates. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Elephant-Ear (Elliptio crassidens)	Endangered	Found in large rivers with mud, sand, and fine gravel substrates. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Long-solid (Fusconaia maculata maculata)	Endangered	Found in small to large rivers with strong currents and gravel substrate. Found in the Lake Erie tributaries, Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Sharp-ridged pocketbook (Lampsilis ovata)	Endangered	Found in large rivers at depths of 15 to 20 feet as well as free-flowing shallow rivers. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Ohio pigtoe (Pleurobema cordatum)	Endangered	Found in large to medium sized streams particularly the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Pyramid pigtoe (Pleurobema rubrum)	Endangered	Large to medium sized streams. Found in riffles or shoals in shallow water with coarse substrate or along sand bars and deep water. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Monkeyface (Quadrula metanevra)	Endangered	Found in silt-free substrates such as sand, gravel, and cobble in moderately flowing small streams. Found in the Ohio River and	Yes, within one-mile radius of the ESA.	No

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA
State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Black sandshell (Ligumia recta)	Threatened	Found in medium to large streams in the riffle-run areas dominated by sand or gravel. Found in the Lake Erie tributaries, Ohio River tributaries, and headwater and small inland streams.	Yes, within one-mile radius of the ESA.	No
Threehorn wartyback (Obliquaria reflexa)	Threatened	Found in large rivers with primary substrate sand or gravel. Found in Lake Erie and tributaries, Ohio River and tributaries, man-made lakes and ponds.	Yes, within one-mile radius of the ESA.	No
Fawnsfoot (Truncilla donaciformis)	Threatened	Found in medium to large rivers with sand and gravel substrate. Found in Lake Erie and tributaries, Ohio River and tributaries, man-made lakes and ponds.	Yes, within one-mile radius of the ESA.	No
Reptiles				
Timber rattlesnake (Crotalus horridus horridus)	Endangered	Woodland areas, dry slopes and rocky outcrops. Uses the sunlit gaps in the canopy for basking.	Per ODNR, due to the location this project is not likely to impact this species.	No
Amphibians				
Eastern hellbender *(Cryptobranchus alleganiensis alleganiensis)*	Endangered	Fast, clear streams and rivers containing many large boulders, logs, and debris.	Per ODNR, it is unlikely that any perennial streams of sufficient size are within the corridor and this species should not be impacted.	No
Eastern spadefoot toad *(Scaphiopus holbrookii)*	Endangered	Areas of sandy soils associated with river valleys, breeding habitats may include flooded agricultural fields.	Per ODNR it is unlikely this project will impact this species.	No

Sources: ODNR, 2017; USFWS, 2017; ECOS, 2016; IUCN, 2017; NatureServe Explorer, 2016

5.3 Protected Species Summary

None of the federal species listed in Table 5-1 are known to occur in the Project vicinity per data obtained from the USFWS. No state or federally-listed species were observed during field assessments, although no species-specific surveys were conducted, and casual observations of these species would be highly unlikely.

Suitable habitat in the ESA may exist for the Indiana bat and northern long-eared bat; however, the data provided by ODNR did not include any records of known presence of either species.

If no caves or abandoned mines are present and trees equal to three inches DBH cannot be avoided, USFWS and ODNR recommend removal of trees only occur between October 1st and March 31st (USFWS, 2017; ODNR, 2017). If suitable trees must be cut during the summer months, surveys should be conducted according to the 2017 Range-Wide Indiana Bat Summer Survey Guidelines (USFWS, 2017a) and the results coordinated with the USFWS and ODNR.

ODNR indicates that the Project has several threatened or endangered mussel and fish species present within a one-mile radius of the ESA. According to the ODNR, the Project must not have an impact on freshwater native mussels within the study area. ODNR recommends following the Ohio Mussel Survey Protocol if any in-stream work is proposed to document that no mussel impacts will occur. The Protocol specifies mussel surveys for certain listed streams and any other streams with a watershed of 10 square miles or larger. All streams in the ESA have watersheds of less than one square mile and no instream work is proposed. Therefore, no streams in the ESA appear to have suitable mussel habitat, and no impacts to mussels will occur.

The ODNR also recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to the listed fishes and indigenous aquatic species and their habitat (ODNR, 2017). All fishes listed by the ODNR within the one-mile radius are associated with medium to large perennial streams and rivers. Therefore, no impact to these fishes appears likely.

Regarding listed reptiles and amphibians, the ODNR has indicated that due to the location, this project is not likely to impact these species. The ODNR identifies the floodplains of the Muskingum River and West Fork Duck Creek as potential habitats for the eastern spadefoot toad. The ESA does not include either of these areas.

6 Conclusion

AEP is proposing to construct a new 0.1-mile 138 kV electric transmission line connecting the future Devola Substation and existing Devola -Riverview 138 kV transmission line in Washington County, Ohio. Field surveys were conducted by Jacobs on January 23 and October 10, 2018. The five streams were all identified as Class 1 ephemeral streams and determined to be unnamed tributaries to the Muskingum River. The delineated wetland was identified as a Category 1 PEM wetland (0.02 acre). All five streams and one delineated wetland are expected to be within the USACE's jurisdiction due to the connection or proximity to the Muskingum River or its tributaries. No in-water work is proposed as part of the Project and therefore impact to any of the delineated features is not anticipated. Further coordination with the USACE prior to completing any permit or construction activities is recommended. The Project lies in an area ineligible for Nationwide Permit authorization without an Individual 401 Water Quality certification.

7 References

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Figures

Legend

- Substation
- Existing Transmission Line Structure
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area

BASE MAP SOURCE:
USGS 7.5-minute
Topographic Quadrangles:
Marietta

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:8,000

November 05, 2018

LOCATOR MAP

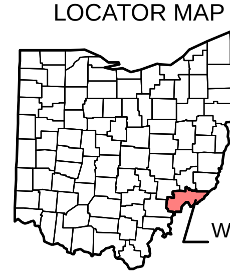
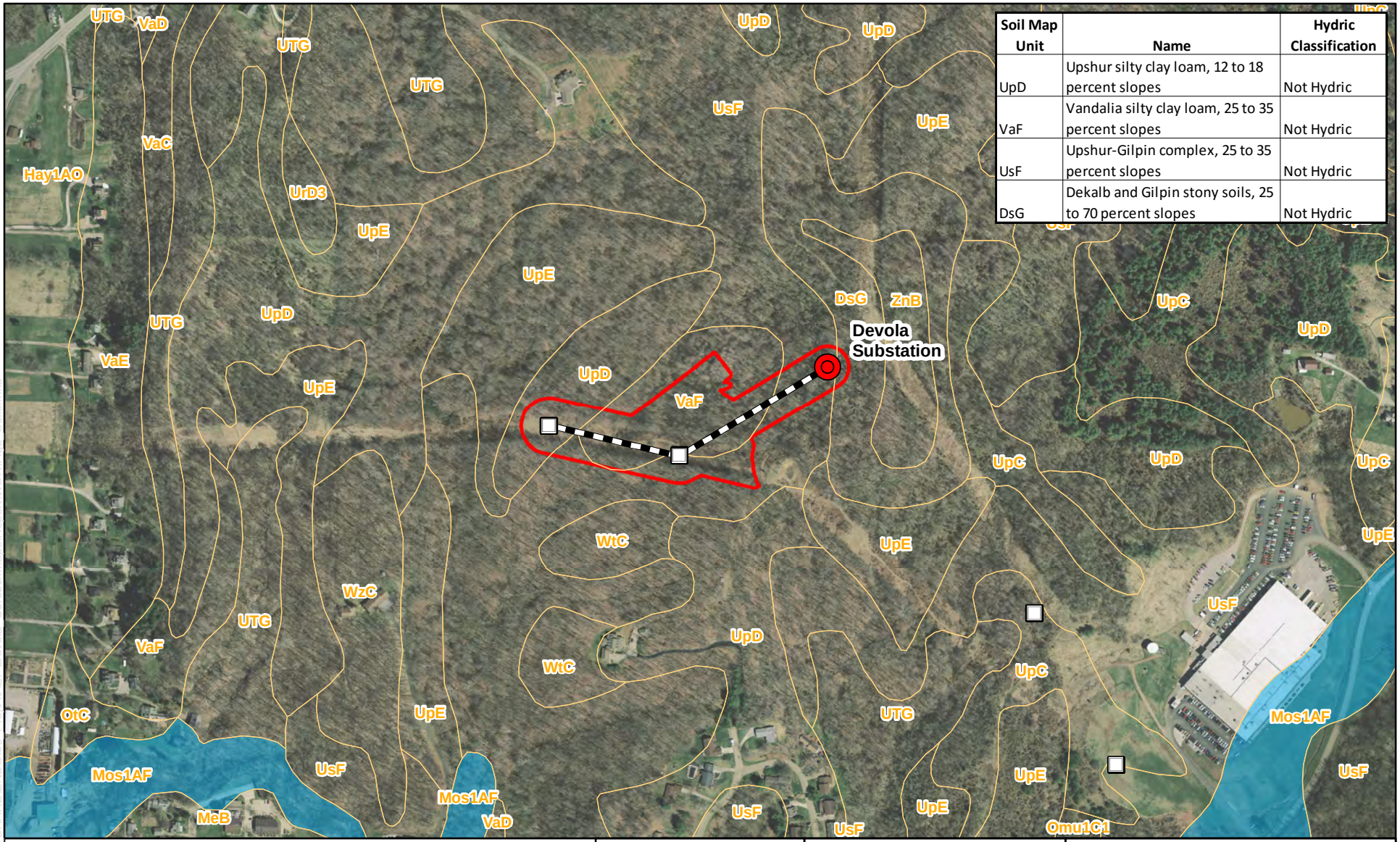


FIGURE 1
USGS TOPOGRAPHIC MAP

AEP OHIO

Proposed Devola-Gorsuch
138 kV Transmission Line
Washington County, OH

0 500 1,000
Feet



Soil Map Unit	Name	Hydric Classification
UpD	Upshur silty clay loam, 12 to 18 percent slopes	Not Hydric
VaF	Vandalia silty clay loam, 25 to 35 percent slopes	Not Hydric
UsF	Upshur-Gilpin complex, 25 to 35 percent slopes	Not Hydric
DsG	Dekalb and Gilpin stony soils, 25 to 70 percent slopes	Not Hydric

Legend

- Substation
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area
- Soil Map Unit
- Predominantly Non-Hydric Soil

BASE MAP SOURCE:
Ohio Statewide Imagery Program, 2014

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:6,000

November 05, 2018

LOCATOR MAP

FIGURE 2
SOIL MAP

AEP OHIO

Proposed Devola-Gorsuch 138 kV Transmission Line
Washington County, OH

0 500 1,000
Feet

Legend

- Substation
- Existing Transmission Line Structure
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area
- Wetland (NWI)
- Stream (NHD)
- Floodplain

BASE MAP SOURCE:
Ohio Statewide Imagery Program, 2014

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:6,000

November 05, 2018

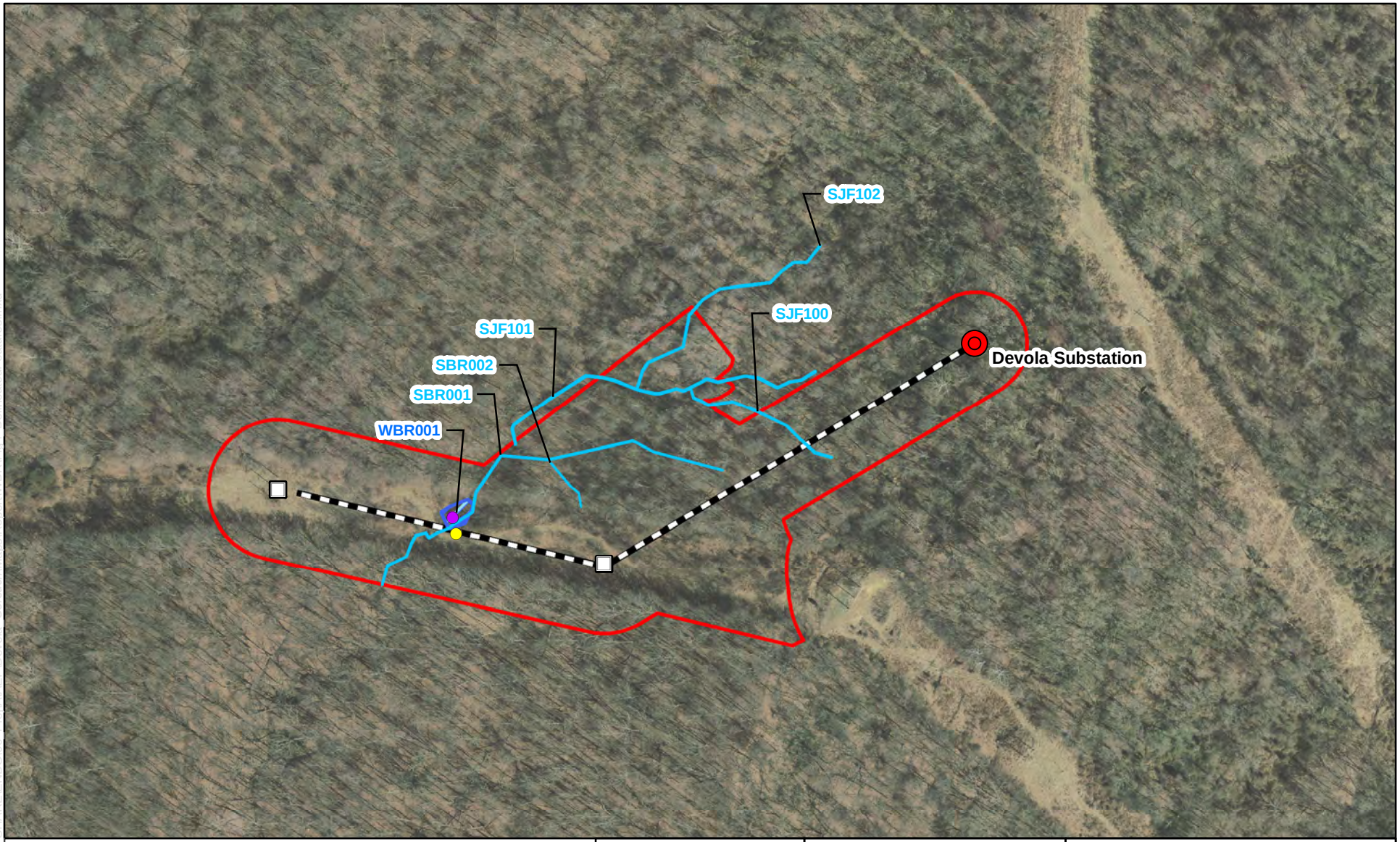
LOCATOR MAP

FIGURE 3
NHD, NWI, AND FLOODPLAIN

AEP OHIO

Proposed Devola-Gorsuch 138 kV Transmission Line Washington County, OH

0 500 1,000
Feet



Legend

- Substation
- Existing Transmission Line Structure
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

BASE MAP SOURCE:
Ohio Statewide Imagery Program, 2014

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:2,400

November 05, 2018

LOCATOR MAP

FIGURE 4
WETLAND, WATERBODIES DELINEATION MAP

Proposed Devola-Gorsuch
138 kV Transmission Line
Washington County, OH

0 100 200
Feet

Appendix A
OEPA Primary Headwater Habitat Evaluation Forms

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **29**

SITE NAME/LOCATION: Devola-Gorsuch 138kV Transmission Line, Washington County, Ohio

SITE NUMBER: SBR001 RIVER BASIN: 05040004 DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 600 LAT.: 39.44814 LONG.: -81.45048 RIVER CODE: RIVER MILE:

DATE: 10/10/18 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

Crosses existing transmission line ROW

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	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]	30%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	50%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

19

A + B

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

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

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 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]	☐	> 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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** 0.76

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: Crosses cleared/maintained transmission line 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: Estimated ephemeral 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: **Little Muskingum River** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Fearing Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: **0.00**

Photograph Information: **4 photos 307-310 (upstream, downstream, substrate, substrate)**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

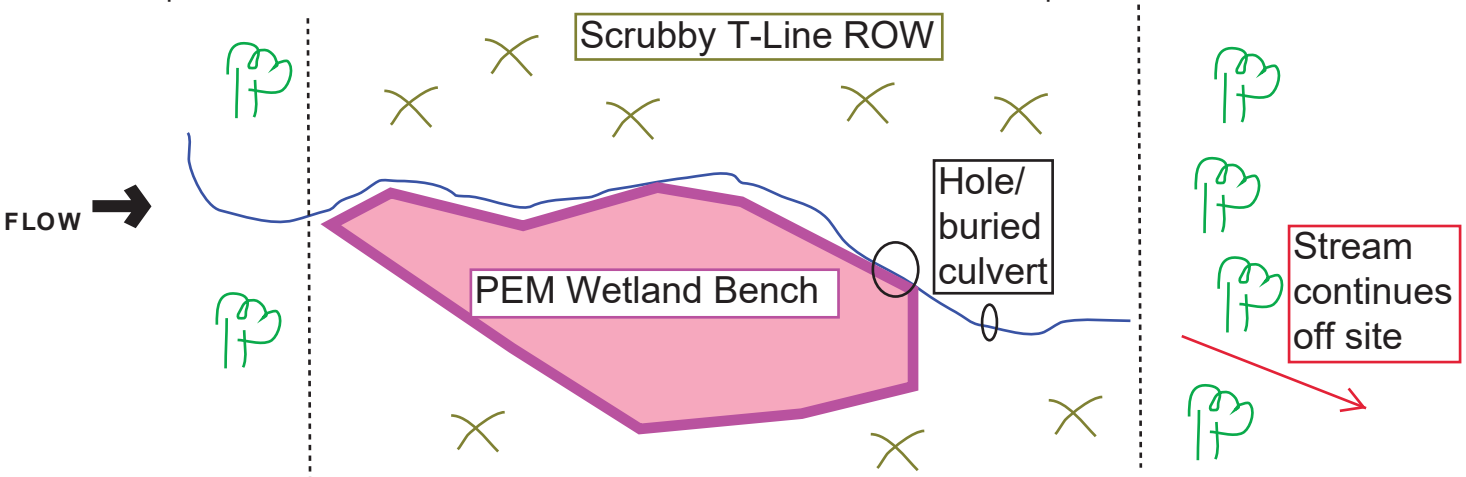
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

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

Comments Regarding Biology: _____

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

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



Save as pdf Reset Form

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **24**

SITE NAME/LOCATION: Devola-Gorsuch 138kV Transmission Line, Washington County, Ohio

SITE NUMBER: SBR002 RIVER BASIN: 05040004 DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 600 LAT.: 39.44829 LONG.: -81.44829 RIVER CODE: RIVER MILE:

DATE: 10/10/18 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 of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	40%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	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]	20%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

19

A + B

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

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

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** 0.30

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	☐	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: **Little Muskingum River** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Fearing Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: **0.00**

Photograph Information: **3 photos 304-306 (upstream, downstream, substrate)**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

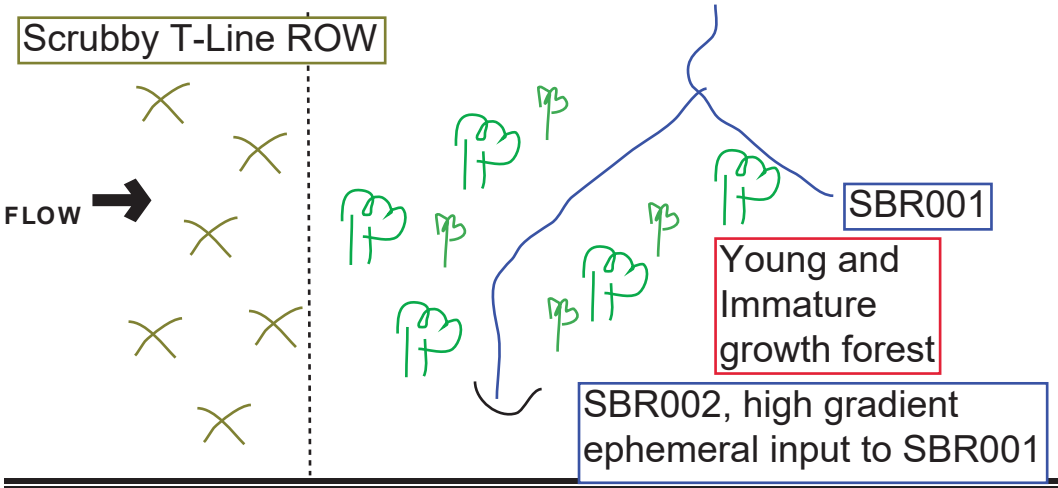
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

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

Comments Regarding Biology: _____

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

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



Save as pdf Reset Form

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **17**

SITE NAME/LOCATION: **AEP Devola Station**

SITE NUMBER: **SJF100** RIVER BASIN: **HUC 050400041204** DRAINAGE AREA (mi²): **<0.01**

LENGTH OF STREAM REACH (ft): **210** LAT. **39.44838** LONG. **-81.44859** RIVER CODE: RIVER MILE:

DATE: **01/23/18** SCORER: **J. Freer** COMMENTS: **Heavy rain 1/22 and 1/23**

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

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	30%
☐	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: **0.00%** (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** **TOTAL NUMBER OF SUBSTRATE TYPES:** **4**

HHEI Metric Points

Substrate Max = 40

7

A + B

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

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

COMMENTS: Rained heavily last night/this morning **MAXIMUM POOL DEPTH (centimeters):** **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]	☐	> 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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** **0.90**

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, heavy rain last night

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: **Muskingum River** Distance from Evaluated Stream **1,800.00** 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: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Muskingum twp.**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **01/23/18** Quantity: **0.16**

Photograph Information: **US, DS, Substrate**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **30%** no leaves

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

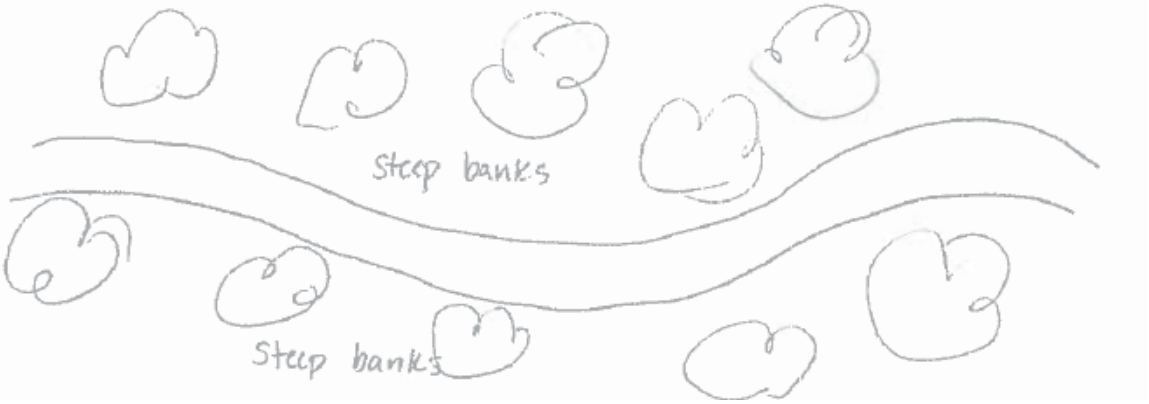
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

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

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

FLOW →



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Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **17**

SITE NAME/LOCATION: **AEP Devola Station**

SITE NUMBER: **SJF101** RIVER BASIN: **HUC 050400041204** DRAINAGE AREA (mi²): **<0.01**

LENGTH OF STREAM REACH (ft): **140** LAT.: **39.44872** LONG.: **-81.44864** RIVER CODE: _____ RIVER MILE: _____

DATE: **01/23/18** SCORER: **J. Freer** COMMENTS: **Heavy rain 1/22 and 1/23**

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

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	30%
☐	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: **0.00%** (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** **TOTAL NUMBER OF SUBSTRATE TYPES:** **4**

HHEI Metric Points

Substrate Max = 40

7

A + B

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

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

COMMENTS: Rained heavily last night/this morning **MAXIMUM POOL DEPTH (centimeters):** **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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: _____ **AVERAGE BANKFULL WIDTH (meters):** **1.20**

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, heavy rain last night

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: **Muskingum River** Distance from Evaluated Stream **1,800.00** 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: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Muskingum twp.**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **01/23/18** Quantity: **0.16**

Photograph Information: **US, DS, Substrate**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **30%** no leaves

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

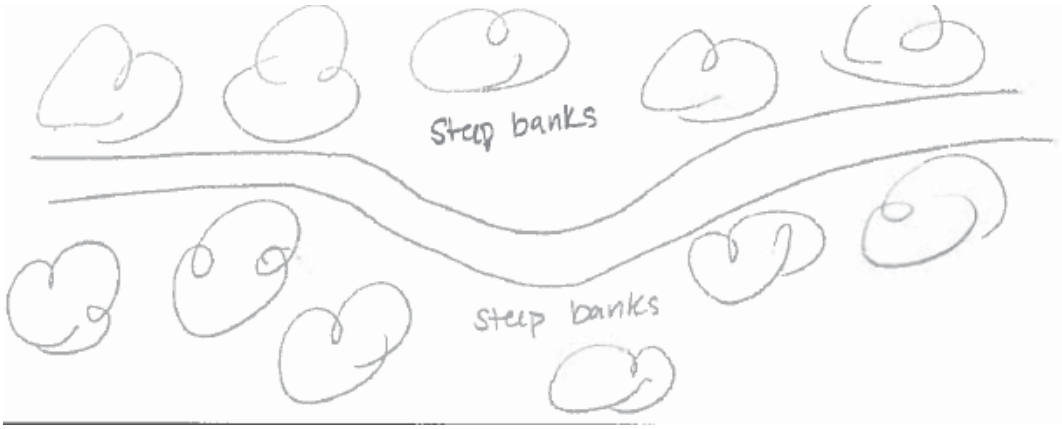
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

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

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

FLOW →



Save as pdf Reset Form

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: AEP Devola Station

SITE NUMBER: SJF102 RIVER BASIN: HUC 050400041204 DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 195 LAT.: 39.44921 LONG.: -81.44862 RIVER CODE: RIVER MILE:

DATE: 01/23/18 SCORER: J. Freer COMMENTS: Heavy rain 1/22 and 1/23

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

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	30%
☐	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: 0.00% **(A)** Substrate Percentage Check: 100% **(B)**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

7

A + B

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

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

COMMENTS: Rained heavily last night/this morning **MAXIMUM POOL DEPTH (centimeters):** 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]	☐	> 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 (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** 0.90

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, heavy rain last night

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: **Muskingum River** Distance from Evaluated Stream **1,800.00** 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: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Muskingum twp.**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **01/23/18** Quantity: **0.16**

Photograph Information: **US, DS, Substrate**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **35%** no leaves

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

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

Comments Regarding Biology: _____

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

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

FLOW →

Save as pdf Reset Form

Appendix B
United States Army Corps of Engineers
Wetland/Upland Determination Forms

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Devola-Gorsuch 138 kV Transmission Line City/County: Washington Sampling Date: 10/10/18
Applicant/Owner: AEP State: Ohio Sampling Point WBR001
Investigator(s): Brian Robertson, Matt Abbott Section, Township, Range: S25 T1N R1E
Landform (hillslope, terrace, etc.): floodplain bench Local relief (concave, convex, none): concave Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat.: 39.448207 Long.: -81.450454 Datum: WGS 84
Soil Map Unit Name VaF-Vandalia silty clay loam, 25 to 35 percent slopes NWI Classification: N/A

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

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil X, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	**Is the sampled area within a wetland?** Yes

Remarks:

Wetland data point for WBR001 (PEM), small bench along 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)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X
- ___ 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X 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? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WBR001

Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus allegheniensis*	10	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Herb Stratum	Plot Size (5 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Persicaria perfoliata*	90	Y	FAC
2	*Onoclea sensibilis*	25	N	FACW
3	*Persicaria maculosa*	15	N	FACW
4	*Eleocharis obtusa*	5	N	OBL
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		135	= Total Cover	

Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	2	5
Herb Stratum	27	68
Woody Vine Stratum	0	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:

OBL species	5	x 1 =	5
FACW species	40	x 2 =	80
FAC species	90	x 3 =	270
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	145 (A)		395 (B)

Prevalence Index = B/A = 2.72

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

___ Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** WBR001

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*	Loc**	Texture	Remarks
0-7	10YR 4/2	80	2.5YR 5/3	20	C	PL/M	Sandy Clay Loam	floodplain dep. patterns
7-18	5YR 4/3	90	2.5YR 4/8	10	C	M	Sandy Clay Loam	

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

Hydric Soil Indicators:

___ Histisol (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:

___ 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)
_X_ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks: Soil determined to be problematic due to frequent floodplain deposition. Redox features present, yet faint.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Devola-Gorsuch 138 kV Transmission Line City/County: Washington Sampling Date: 10/10/18
Applicant/Owner: AEP State: Ohio Sampling Point UPLBR001
Investigator(s): Brian Robertson, Matt Abbott Section, Township, Range: S25 T1N R1E
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat.: 39.448207 Long.: -81.450454 Datum: WGS 84
Soil Map Unit Name VaF-Vandalia silty clay loam, 25 to 35 percent slopes NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year Yes X No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? No Hydric soil present? No Wetland hydrology present? No	**Is the sampled area within a wetland?** No

Remarks:

Upland data point for WBR001 (PEM), collected on slope adjacent to stream/wetland within 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? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UPLBR001

Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus allegheniensis*	10	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Herb Stratum	Plot Size (5 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Lespedeza cuneata*	80	Y	FACU
2	*Festuca arundinacea*	30	Y	FACU
3	*Persicaria perfoliata*	10	N	FAC
4	*Dryopteris goldiana*	10	N	FAC
5	*Daucus carota*	1	N	UPL
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		131	= Total Cover	

Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	2	5
Herb Stratum	26	66
Woody Vine Stratum	0	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:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	20	x 3 =	60	
FACU species	120	x 4 =	480	
UPL species	1	x 5 =	5	
Column totals	141	(A)	545	(B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

___ Dominance test is >50%

___ Prevalence index is ≤3.0*

___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** UPLBR001

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*	Loc**	Texture	Remarks
0-14	10YR 4/3	100					Silty Clay	

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

Hydric Soil Indicators:

___ Histisol (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:

___ 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)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:

Appendix C
Ohio Environmental Protection Agency ORAM Forms

ORAM v. 5.0 Field Form Quantitative Rating

Site: Gorsuch-Devola, WBR001	**Rater(s):** BCR	**Date:** 10/10/18

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 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.

10 (max 30 pts.) | 18 (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)
- [ ] 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 (max 20 pts.) | 25 (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

25 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: Gorsuch-Devola, WBR001	**Rater(s):** BCR	**Date:** 10/10/18

25
subtotal first page

0 (max 10 pts.) | 25 (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)

1 (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
- [0] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

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

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

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

Appendix D
Photo Documentation

Site Name	Photo Direction
Stream SBR001 (Ephemeral)	Upstream

Site Name	Photo Direction
Stream SBR002 (Ephemeral)	Upstream

Site Name	Photo Direction
Stream SJF100 (Ephemeral)	Downstream

Site Name	Photo Direction
Stream SJF101 (Ephemeral)	Upstream

Site Name	Photo Direction
Stream SJF102 (Ephemeral)	Downstream

Appendix E
Threatened and Endangered Species Consultation

From:	susan_zimmermann@fws.gov
To:	Qualio, Trisha/PGH
Cc:	Frank, Mike/CIN; nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject:	Devola 138 kV Substation Project, Marietta, Washington Co. [EXTERNAL]
Date:	Monday, September 11, 2017 2:25:07 PM
Attachments:	Capture of Dan.PNG

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

TAILS# 03E15000-2017-TA-1845

Dear Ms. Qualio,

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.

Should the proposed site contain trees =3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees =3 inches dbh cannot be avoided, we recommend that removal of any trees =3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

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

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

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

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,

Dan Everson

Field Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, 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

November 20, 2017

Trish Qualio
CH2M
400 Industry Drive, Suite 100
Pittsburgh, PA 15275

Re: 17-680; Devola 138 kV Substation Project

Project: The proposed project involves the construction of a new 138 kV substation that will connect 138 kV lines from the future Macksburg Substation via the Highland Ridge Substation.

Location: The proposed project is in Devola Township, Washington County, Ohio.

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

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

Fanshell (*Cyprogenia stegaria*), E, FE
Butterfly (*Ellipsaria lineolata*), E,
Long-solid (*Fusconaia maculata maculata*), E
Pink mucket (*Lampsilis orbiculata*), E, FE
Washboard (*Megalonaias nervosa*), E
Threehorn wartyback (*Obliquaria reflexa*), T
Sheepnose (*Plethobasus cyphyus*), E, FE
Ohio pigtoe (*Pleurobema cordatum*), E
Round pigtoe (*Pleurobema sintoxia*), SC
Monkeyface (*Quadrula metanevra*), E
Fawnsfoot (*Truncilla donaciformis*), T
River redhorse (*Moxostoma carinatum*), SC

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 project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the sheepnose (*Plethobasus cyphyus*), 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 washboard (*Megalonaias nervosa*), a state endangered mussel, the butterfly (*Ellipsaria lineolata*), a state endangered mussel, the elephant-ear (*Elliptio crassidens*), a state endangered mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the sharp-ridged pocketbook (*Lampsilis ovata*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the pyramid pigtoe (*Pleurobema rubrum*), a state endangered mussel, the monkeyface (*Quadrula metanevra*), a state endangered mussel, the black sandshell (*Ligumia recta*), a state threatened mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, and the fawnsfoot (*Truncilla donaciformis*), a

state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the blue sucker (*Cycleptus elongatus*), a state endangered fish and a Federal species of concern, the western banded killifish (*Fundulus diaphanus menona*), a state endangered fish, the northern madtom (*Noturus stigmosus*), a state endangered fish, the Ohio lamprey (*Ichthyomyzon bdellium*), a state endangered fish, the paddlefish (*Polyodon spathula*) a state threatened fish, the mountain madtom (*Noturus eleutherus*), a state threatened fish, the river darter (*Percina shumardi*), a state threatened fish, the mountain madtom (*Noturus eleutherus*), a state threatened fish, the channel darter (*Percina copelandi*), a state threatened fish, and the Tippecanoe darter (*Etheostoma tippecanoe*), a state threatened fish. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering. Due to the location, the type of habitat present at the project site, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this project is not likely to impact this species.

The project is 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. Due to the location, the habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, 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 John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler
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2045 Morse Road, Building E-2

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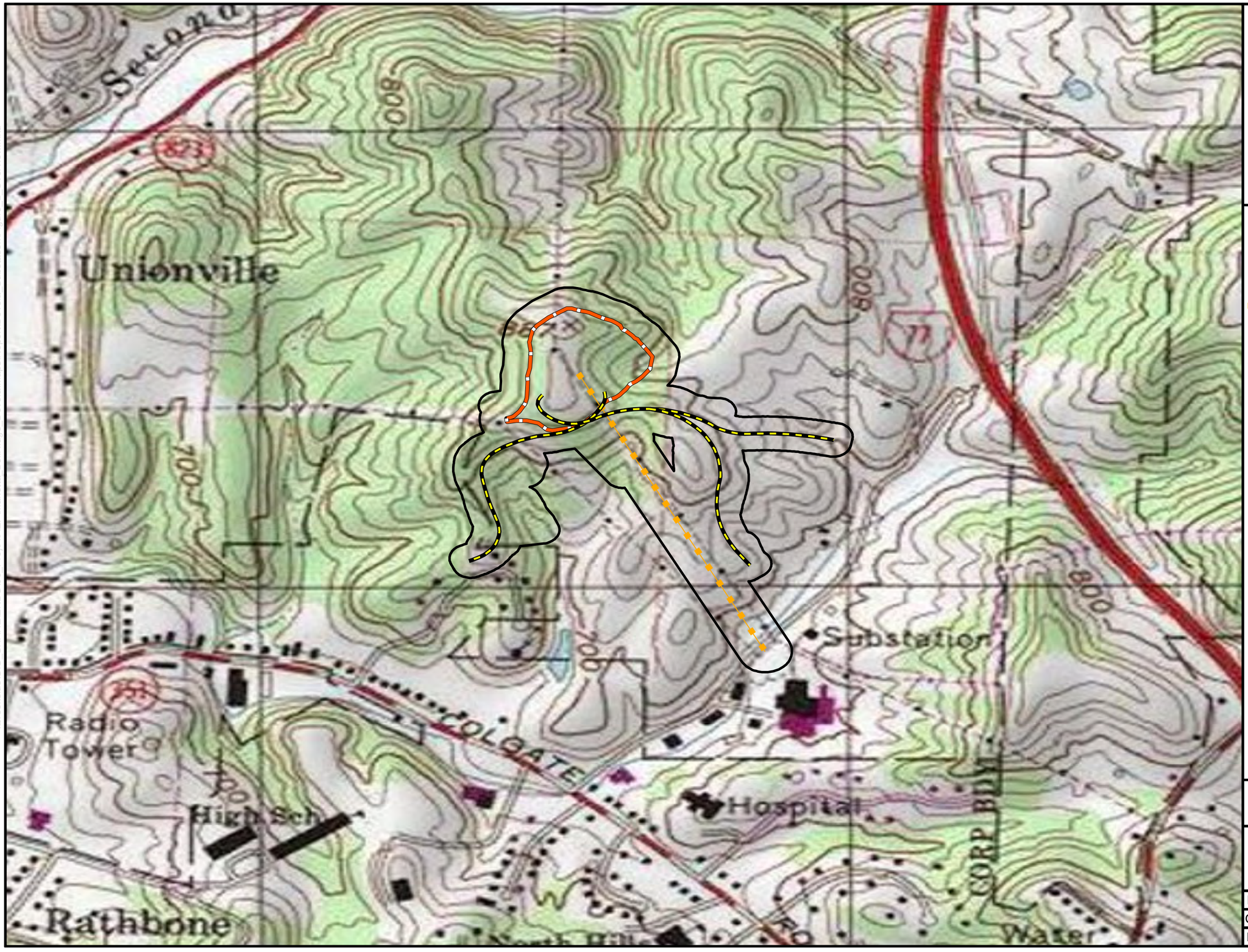

LOCATOR MAP

LEGEND:

N

- Devola Substation Footprint
- Devola-Mill Creek Transmission Line
- Proposed Access Road
- Study Area

BASE MAP SOURCE:
USGS 7.5' Topographic Quadrangle
Marietta, Ohio

0 500 1,000

Scale In Feet

AEP OHIO TRANSMISSION COMPANY

Devola Substation

FIGURE 1
TOPOGRAPHIC OVERVIEW

PN: 692027	DATE: 8/24/2017
CREATED BY: MV	ch2m.
REVIEWED BY: MF	

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