Letter of Notification for Seaman-Adams 138 kV Transmission Line Rebuild Project

PUCO Case No. 20-1495-EL-BLN

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

Submitted by:
AEP Ohio Transmission Company, Inc.

October 1, 2020

LETTER OF NOTIFICATION

AEP Ohio Transmission Company, Inc. (AEP Ohio Transco)
Seaman-Adams 138 kV Transmission Line Rebuild Project

4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco" or 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 Construction Notice.

The Company proposes to construct the Seaman-Adams 138 kV Transmission Line Rebuild Project ("Project") in Adams County, Ohio. The Project will begin at the existing Seaman Station, which is located near the junction of Silcott Road and State Route 247 in Scott Township, and end at the existing Adams Station located near the junction of Inlow Avenue and Arey Road in Meigs Township. The length of the proposed Project is approximately 8 miles.

The Project involves the rebuild of two existing single circuit transmission lines as one double circuit line. Specifically, the Company plans to rebuild the existing Adams – Seaman 138 kV circuit from the Seaman Substation to the Adams Substation and the existing Adams – Seaman 69 kV circuit (built to 138kV standards but operated at 69 kV) into one double circuit transmission line. The majority of this new double circuit line will be built within the existing Adams – Seaman 138 kV circuit corridor and the existing Seaman-Adams 69 kV transmission line will be retired[1]. The existing wood pole structures will be replaced with new steel structures. Although the majority of the transmission line rebuild work for this Project will occur within the Company's existing transmission line right-of-way ("ROW"), approximately 0.7 mile will be located outside of existing ROW. Figure 1 (Appendix A) shows the location of the Project. Figure 2 in Appendix A shows the existing and proposed ROW corridor, substations, and existing and proposed structure locations.

A Letter of Notification ("LON") for the Ware Road-Seaman 138 kV Transmission Line Project, which includes the Seaman-Adams 138 kV Transmission Line Project, was originally submitted on May 5, 2017 in Case No. No. 17-0813-EL-BLN. Due to subsequent project modification and design changes by the Company, the Seaman-Adams 138 kV Transmission Line Project now requires submittal of a new OPSB application. This LON proposes to rebuild 8.0 miles of the Seaman-Adams 138 kV Transmission Line as a double circuit 138 kV transmission line instead of a single circuit 138 kV transmission line, as originally proposed under Case No. 17-0813-EL-BLN.

[1] Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio.

The Project meets the requirements for a Letter of Notification ("LON") because it is within the types of projects defined by item 2(b) of Ohio Administrative Code Section 4906-1-01 Appendix A of the Application Requirement Matrix for Electric Power Transmission Lines:

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

The Project has been assigned PUCO Case No. 20-1495-EL-BLN.

B(2) Statement of Need

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

The proposed Project is a part of a series of improvements planned for AEP Ohio Transco's 32.8 miles Waverly-Adams-Seaman 138 kV transmission line (vintage 1954) project to improve reliability in Pike and Adams Counties, Ohio. The Waverly – Adams – Seaman 138 kV line serves two Stations; Adams Station and Ware Road Station which have a total load of approximately 15 MVA. The Seaman – Adams 69 kV line serves Lawshe Station with a total load of approximately 5 MVA. The Waverly – Adams – Seaman 138 kV line has 153 open conditions on 244 structures, resulting in approximately 1 million customer minutes of interruption (CMI) over a three year period for the entire 32.8 mile line. The average duration of the outages has been 2.8 hours. In addition, the Seaman – Adams 69 kV transmission line (vintage 1939), which runs parallel to the Waverly-Adams-Seaman 138 kV line for 11.9 miles, has reliability and asset renewal concerns. Specifically, the Seaman – Adams 69 kV line has 401 conditions on 440 structures, which have resulted in 13 outages over a three year period with two outages lasting over 24 hours. The open conditions include broken crossarms, insulators, and conductor hardware.

This Project will rebuild these two lines as one double-circuit line built to 138 kV standards. The Adams-Seaman 69 kV circuit will continue to be operated at 69 kV. The Project will significantly improve the reliability of the customers served from these two lines. The condition of the lines expose the customers served at Lawshe Station and Ware Road Station to continued and increased unplanned outages as the lines continue to deteriorate. Failure to complete this Project will result in continued reliability issues and an increasing number of CMI experienced by customers served by both lines as the condition of the line assets continues to deteriorate. Rebuilding both lines to modern standards eliminates the immediate concern around the condition and risk of the existing lines.

The need and solution for this project were presented to PJM on April 7, 2018 and May 21, 2018, respectively, and the Project was subsequently assigned PJM number S1621. This Project was included in AEP Ohio Transco's most recent Long-Term Forecast Report Form FE-T9 on pages 51 and 73 of 87.

B(3) Project Location

[1] Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio.

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

The Project is located in Meigs Township, Scott Township, and the Village of Seaman, Adams County, Ohio. Figures 1 and 2 in Appendix A show the location of the proposed Project in relation to existing facilities, including existing substations and transmission 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 majority of the proposed transmission line rebuild work will occur within existing Company ROW (see Figure 2 in Appendix A), with much of it occurring along the existing transmission line centerline. The Project route is efficient, direct and uses existing ROW to minimize viewshed impacts. In addition, ecological and cultural surveys were conducted within the proposed Project area and based on those surveys it was determined that no cultural or ecological features would be permanently impacted by the Project. Based on desktop and field examinations, the Company concluded that combining the 69 kV circuit and 138 kV circuit into one single ROW corridor was feasible and the most reasonable route. Socioeconomic, land use, and ecological information is presented in Section B(10).

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 informs affected property owners and tenants about its projects through several different mediums. Within seven days of filing this LON, the Company will issue a public notice in a newspaper of general circulation in the Project area. The notice will comply with all requirements under O.A.C. Section 4906-6-08(A)(1-6). Further, the Company mailed a letter, via first class mail, to affected landowners, tenants, contiguous owners, and any other landowner the Company approached for an easement necessary for the construction, operation, or maintenance of the transmission lines. The letter complies with all the requirements of O.A.C. Section 4906-6-08(B). The Company also maintains a website (http://aeptransmission.com/ohio/) which provides the public access to an electronic copy of this LON and the public notice for this LON. An electronic copy of the LON will be served to the public library in each political subdivision affected by this proposed Project. Lastly, the Company retains land agents who will 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.

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The Company anticipates that construction of the Project will begin in November of 2020, and the in-service date (completion date) of the Project will be approximately December 2021.

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.

Appendix A, Figure 1 provides a map with existing and proposed facilities, and clearly marked roads and highways at 1:24,000, and Figure 2 provides an aerial showing project components, at a scale of 1:2,400.

To visit the Project from Columbus, take I-71 South toward Cincinnati (38.4 miles). Take exit 69 to merge onto OH-41 South, then take OH-41 South to US-62 West (5.2 miles). Follow US-62 West to Muntz Street in Hillsboro (29.9 miles). Then follow OH-247 South to Silcott Road in Seaman (18.6 miles). Turn left on Silcott Road and Seaman Station will be on the left side of the road approximately 0.1 mile from the intersection of OH 247 South and Silcott 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.

The Project will primarily be constructed within existing ROW. However, limited portions of the Project will be constructed outside of the existing ROW. A table of property parcel numbers and road crossing names with an indication as to whether the easement/option necessary to construct and operate the facility has been obtained is provided in Appendix C.

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 transmission line construction is estimated to include the following:

Voltage: 138 kV
Conductors: (6) - 1033.5 KCM (54/7) ACSR
Static Wire: 7#8 Alumoweld & 48 Fiber OPGW
Insulators: Non-ceramic
ROW Width: 100 Feet
Structure Type: Five (5) single circuit, steel monopole dead ends
Three (3) single circuit, steel monopole suspension
Five (5) single circuit, steel H-frame suspension
Two (2) single circuit, steel three-pole dead ends

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Eleven (11) double circuit, steel monopole dead ends
Forty-four (44), double circuit, steel monopole suspension

B(9)(b) Electric and Magnetic Fields

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

(i) Calculated Electric and Magnetic Field Strength Levels

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

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

Seaman-Adams 138 kV Line				
Condition	**Seaman - Adams 138kV / 69 kV Circuits Load (A)**	**Minimum Ground Clearance (feet)**	**Electric Field (kV/m)***	**Magnetic Field (mG)***
(1) Normal Max. Loading^	64.01/26.78	30	0.15/1.81/0.07	2.98/10.03/1.66
(2) Emergency Line Loading^^	81.16/74.47	23.25	0.15/1.81/0.07	3.80/14.19/3.16
(3) Winter Conductor Rating^^^	1564.70 /1564.70	30	0.15/1.81/0.07	73.97/282.15/65.89

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

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

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

	General Public	Controlled Environment
Electric Field Limit (kV/m)	5.0	20.0
Magnetic Field Limit (mG)	9040	27,100

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

B(9)(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.

Design alternatives were not considered due to the EMF strength levels. Transmission lines, when energized, generate EMF. Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, some people are concerned that EMF have impacts on human health. Due to these concerns, EMF associated with the new circuits was calculated and set forth in the table above. The EMF was computed assuming the highest possible EMF values that could exist along the proposed transmission line. Normal daily EMF levels will operate below these maximum load conditions. Based on studies from the National Institutes of Health, the magnetic field (measured in milliGauss, or mG) associated with emergency loading at the highest EMF value for this transmission line is lower than those associated with normal household appliances like microwaves, electric shavers and hair dryers, shavers and hair dryers. For additional information regarding EMF, the National Institutes of Health has posted information on their website: http://www.niehs.nih.gov/health/topics/agents/emf/. Additionally, information on electric and magnetic fields is available on AEP Ohio's website: https://www.aepohio.com/info/projects/emf/OurPosition.aspx. The information found on AEP Ohio's website describes the basics of electromagnetic field theory, scientific research activities, and EMF exposures encountered in everyday life. Similar material will be made available for those affected by the construction activities for this Project. Additionally, the transmission line rebuild work associated with the Project will occur mainly within the Company's existing ROW, therefore, no alternatives were considered.

B(9)(c) Project Cost

The estimated capital cost of the project.

The capital cost estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately $19,800,000 using a Class 4 estimate. Pursuant to the PJM OATT, the costs for this Project will be recovered in the AEP Ohio Transmission Company's FERC formula rate (Attachment H-20 to the PJM OATT) and allocated to the AEP Zone.

B(10) Social and Economic Impacts

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

B(10)(a) Land Use Characteristics

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

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The Project is located in Meigs Township, Scott Township, and the Village of Seaman, Adams County, Ohio. Field observations show the Project area is comprised primarily of pasture, agricultural field, old field, hay field, and mixed early successional/second growth deciduous forest habitats. Residential lawn, industrial land, existing paved/gravel roadway, mixed early successional/second growth riparian forest, second growth coniferous forest, and new field habitat is present to a lesser extent (see Figure 3 in Appendix E). Appendix E also contains photographs and descriptions of specific habitat types and land uses within the Project area. There are currently 7 occupied residences within 100 feet of the proposed centerline of the Project and 151 occupied residences located within 1,000 feet of the proposed centerline of the Project. There are no parks, schools, designated places of worship, cemeteries, wildlife management areas, or nature preserve lands within 1,000 feet of the Project area.

Approximately 14 acres of tree clearing will be required for the Project. Any necessary tree clearing will take place between October 1 and March 31, to adhere to recommendations from the U.S. Fish and Wildlife Service ("USFWS") and Ohio Department of Natural Resources ("ODNR"). Additionally, no significant environmental or cultural resources are expected to be impacted as a result of this Project.

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.

Based on field survey observations by the Company's consultant, there are approximately 35.3 acres of agricultural land in the Project area, comprised primarily of rotating corn/soybean fields (see Figure 3 Appendix D). As verified by the Adams County Auditor's Office on September 14, 2020, the Project contains six parcels that are enrolled in the agricultural district land program. These six parcels account for approximately 18.5 acres within the Project area.

B(10)(c) Archaeological and Cultural Resources

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

Phase I Archaeological and Phase I History/Architectural surveys were completed by the Company's consultant in January and April of 2017 and in August of 2020. Correspondence from the State Historic Preservation Office ("SHPO") was received on February 21, 2017, May 5, 2017, and September 2, 2020 (see Appendix D). According to the correspondence received from the SHPO, the Project will have no adverse effects on historic properties and no further cultural resource work is necessary.

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.

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A Notice of Intent (NOI) will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000005, and the Company will implement and maintain best management practices as outlined in the project-specific Storm Water Pollution Prevention Plan to minimize erosion and sediment to project surface water quality during storm events.

Coordination with the SHPO, the USFWS, and the ODNR have been completed and coordination letters can be found in Appendix D. Initially coordination with ODNR and USFWS took place in late 2016/early 2017 (see Appendix D). Consultation with ODNR and USFWS is occurring again and will be coordinated directly with the OPSB once complete.

The Project will not require a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers ("USACE") or Pre-Construction Notification to the USACE, as no streams, wetlands, or open waters will be impacted by the Project. Additionally, no existing structures, proposed structures, or proposed access roads are located within mapped Federal Emergency Management Agency ("FEMA") 100-year floodplains or floodway areas (FEMA ID, 39001C). Therefore, no floodplain permitting is expected to be 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.

The USFWS Ohio Ecological Services Field Office list of federally endangered, threatened, and candidate species in Ohio by County (available at https://www.fws.gov/midwest/ohio/EndangeredSpecies/pdf/SpeciesListByCountyApril2018.pdf) was reviewed to determine the listed threatened and endangered species that currently are known to occur, or that have the potential to occur, in Adams County. This USFWS publication lists the following threatened and endangered species and federal species of concern as occurring in or having the potential to occur in Adams County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis septentrionalis;* federally threatened), fanshell (*Cyprogenia stegaria*; federally endangered), pink mucket pearlymussel (*Lampsilis orbiculata*; endangered), rayed bean (*Villosa fabalis*; federally endangered), sheepnose (*Plethobasus cyphyus*; federally endangered), snuffbox (*Epioblasma triquetra*; federally endangered), and running buffalo clover (*Trifolium stoloniferum*; 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 seeking technical assistance on the Project for potential impacts to threatened or endangered species. The December 19, 2016 response letter from the USFWS (see Appendix D) stated that the Project is within the range of the Indiana bat and northern long-eared bat and should the Project site contain trees ≥3 inches diameter at breast height ("dbh"), the USFWS recommends

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trees be saved whenever possible. If any caves or abandoned mines may be disturbed, further coordination is requested. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, USFWS recommends that removal of trees ≥3 inches dbh only occur between October 1 and March 31 to avoid adverse effects to this species. If implementation of seasonal tree clearing is not possible, the USFWS recommends summer presence/absence surveys be conducted between June 1 and August 15.

The USFWS response letter also stated that the Project is within the range of running buffalo clover and, should suitable running buffalo clover habitat be present within the Project area, the USFWS recommended that surveys for this species be conducted by a trained botanist in May or June when the plants are in flower.

On behalf of the Company, USFWS-approved running buffalo clover surveyors completed habitat assessments and pedestrian surveys for this species within the Project area in May of 2018. No running buffalo clover was observed within the Project area during these surveys. The USFWS concurred with the findings of the running buffalo clover surveys in an email dated June 15, 2018 (see Appendix D). USFWS-approved running buffalo clover surveyors also completed pedestrian habitat assessments for this species within recently added portions of the Project area in August of 2020 and found no additional areas of potentially suitable running buffalo clover habitat. Additionally, no suitable winter hibernacula for the Indiana bat or northern long-eared bat were observed by the Company's consultant within the Project area during field surveys completed in 2016, 2017, and 2020, but potentially suitable roost trees for these species will need to be removed for the Project. Any tree clearing that is necessary for the Project is planned to take place between October 1 and March 31. Therefore, no impacts to the Indiana bat or northern long-eared bat are anticipated.

The December 19, 2016 response letter stated that the USFWS does not anticipate adverse effects to any other federally endangered, threatened, proposed or candidate species due to the Project type, size, and location. The Company's consultant submitted an additional technical assistance request letter to the USFWS via email on September 17, 2020, in order to re-coordinate with the USFWS and obtain any additional comments the USFWS may have regarding the Project and it's potential effects on federally listed threatened and endangered species. A response letter from the USFWS has not yet been received but will be provided to OPSB once obtained.

Several state-listed threatened species, endangered species, and species of concern are listed by the ODNR (https://ohiodnr.gov/static/documents/wildlife/state-listed-species/adams.pdf) as occurring in, or potentially occurring in Adams County and/or are listed by the ODNR as occurring statewide. These state-listed species are addressed in detail in the Ecological Resources Inventory Report included in Appendix E. Coordination letters were submitted via email to the ODNR Natural Heritage Program and ODNR Office of Real Estate on December 7, 2016 and January 1, 2017, respectively, seeking an environmental review of the proposed Project for potential impacts to state-listed and federally listed threatened or endangered species.

According to the ODNR Natural Heritage Program response letter received on December 13, 2016 (Appendix D), no occurrences of state-listed threatened or endangered species are known within a one-mile radius of the Project area. The ODNR Natural Heritage Program response letter indicates that a mussel

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bed and the Tranquility Wildlife Area are located within a one-mile radius of the Project area. These resources are not located within the Project area and will not be affected by the Project.

According to the ODNR Office of Real Estate response letter received February 24, 2017 (Appendix D), the Project area is within the range of the state-listed endangered Indiana bat. If suitable habitat occurs within the Project area, the ODNR recommends trees be conserved. If suitable habitat occurs within the Project area and trees must be cut, the ODNR recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this Project is not likely to impact this species. According to the ODNR, the little brown bat (*Myotis lucifugus*; state-listed endangered), northern long-eared bat (state-listed endangered), and tri-colored bat (*Perimyotis subflavus*; state-listed endangered) occur statewide in Ohio. These species roost in trees during the summer months and the little brown bat and tri-colored bat are also known to roost in buildings. As stated above, any tree clearing that is necessary for the Project is planned to take place between October 1 and March 31. Therefore, no impacts to the Indiana bat, northern long-eared bat, little brown bat, or tri-colored bat are anticipated.

The ODNR response letter also stated that the Project area is within the range of 17 state-listed mussel species and 10 state-listed fish species (Appendix D). However, the ODNR stated that if there is no in-water work proposed in a perennial stream, this Project is not likely to impact these mussel or fish species. The Project will not require conducting any in-water work in a perennial stream. Therefore, no impacts to state-listed threatened or endangered mussel or fish species are anticipated.

According to the ODNR Office of Real Estate, the Project is within the range of the state-listed endangered timber rattlesnake (*Crotalus horridus horridus*) and the state-listed endangered eastern spadefoot toad (*Scaphiopus holbrookii*). The ODNR recommended that habitat surveys for timber rattlesnake and eastern spadefoot toad be performed by ODNR-approved herpetologists. If suitable habitat is found to be present, then ODNR recommended a presence/absence survey be conducted or an avoidance/minimization plan be developed and implemented. An eastern spadefoot toad habitat assessment study was conducted by an ODNR-approved herpetologist in 2017. The habitat assessment study concluded that there is no suitable habitat for the eastern spadefoot toad within the Project area and additional presence/absence surveys were not required. ODNR concurred with the results of the habitat assessment (see Appendix E). The Company's consultant conducted additional habitat assessment surveys within recently added portions of the Project area in August of 2020 and determined that no areas of suitable eastern spadefoot toad habitat (soft sandy soils in riverine floodplains) are located within those areas.

Additionally, a timber rattlesnake habitat assessment study was conducted by ODNR-approved herpetologist in 2017. The timber rattlesnake habitat assessment study concluded that there was no suitable habitat for the timber rattlesnake within the Project area and therefore no presence/absence surveys were performed. ODNR concurred with the results of the assessment (see Appendix D). The Company's consultant conducted a review of the recently added portions of the Project area in August of 2020 and determined that these areas are located within or immediately adjacent to portions of the Project area that were determined to not contain suitable timber rattlesnake summer foraging habitat or overwintering habitat by the ODNR-approved herpetologist in 2017.

The ODNR stated that the Project is within the range of the state-listed endangered Kramer's cave beetle (*Pseudanophthalmus krameri*) and Ohio cave beetle (*Pseudanophthalmus ohioensis*). Kramer's cave

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beetle is now listed by the ODNR as extinct in Ohio. Both of these species are only known to occur in caves and no caves were identified within the Project area. Therefore, no impacts to these species are anticipated.

According to the ODNR, the Project is within the range of the state-listed endangered lark sparrow (*Chondestes grammacus*). This sparrow nests in grassland habitats with scattered shrub layers, disturbed open areas, as well as patches of bare soil. These summer residents normally migrate out of Ohio shortly after their young fledge or leave the nest. If this type of habitat will be impacted, construction should be avoided during their nesting period (May 1 through June 30). If this habitat will not be impacted, this project is not likely to impact this species. Field observations by the Company's consultant determined that some areas of potentially suitable nesting habitat for the lark sparrow is present within the Project area, including old field, pasture, and hay field habitats. However, the ODNR stated in an email dated April 25, 2018 (see Appendix D), that given the location, and the proposed impacts, they do not think it is necessary to conduct lark sparrow surveys for the Project. Therefore, the Project may impact but is not likely to impact this species.

The ODNR stated that the Project is within the range of the state-listed endangered black bear (*Ursus americanus*). However, the ODNR stated that due to the mobility of this species, this project is not likely to impact this species.

Potentially suitable nesting habitat (old field, pasture, and openings in early successional forest) is present within the project area for the state-listed endangered loggerhead shrike (*Lanius ludovicianus*). However, according to the ODNR, this species is not known to occur within the Project area or a one-mile radius of it. Additionally, tree clearing associated with the Project is planned to take place in between October 1 and March 31, outside of the loggerhead shrike's nesting season (April 1 to July 31). Therefore, the Project is not anticipated to impact this species.

The Project also contains potentially suitable habitat for the following state-listed threatened and endangered species listed by the ODNR as occurring in, or potentially occurring in, Adams County: Uhler's sundragon (*Helocordula uhleri*; state-listed endangered), blue corporal (*Ladona deplanata*; state-listed endangered), caddisfly (*Oecetis eddlestoni*; state-listed endangered), and green-faced clubtail (*Gomphus viridifrons*; state-listed threatened). Each of these species is dependent upon perennial streams, ponds, and/or lakes and no-in water work is proposed for the Project. Therefore, no impacts to these species are anticipated.

The Company's consultant submitted an additional environmental review request letter to the ODNR Office of Real Estate via email on September 17, 2020, in order to re-coordinate with the ODNR and obtain any additional comments the ODNR may have regarding the Project and its potential effects on state-listed threatened and endangered species. A response letter from the ODNR has not yet been received but will be provided to OPSB once obtained.

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)

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that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

The USFWS response letter indicates that there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the Project area (Appendix D). Additionally, the ODNR response letter stated that no records of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas occur within the Project area (Appendix D).

An ecological resources inventory report was completed by the Company's consultant on September 15, 2020 (Appendix E). During the ecological field surveys, one palustrine emergent wetland totaling approximately 0.04 acres was identified within the Project area. Eight ephemeral streams, five intermittent streams, eight perennial streams, and two open waters/ponds were also identified within the Project area. See Appendix E for more information regarding these aquatic resources. No impacts to the wetland, streams, or open waters are anticipated to be required for the Project.

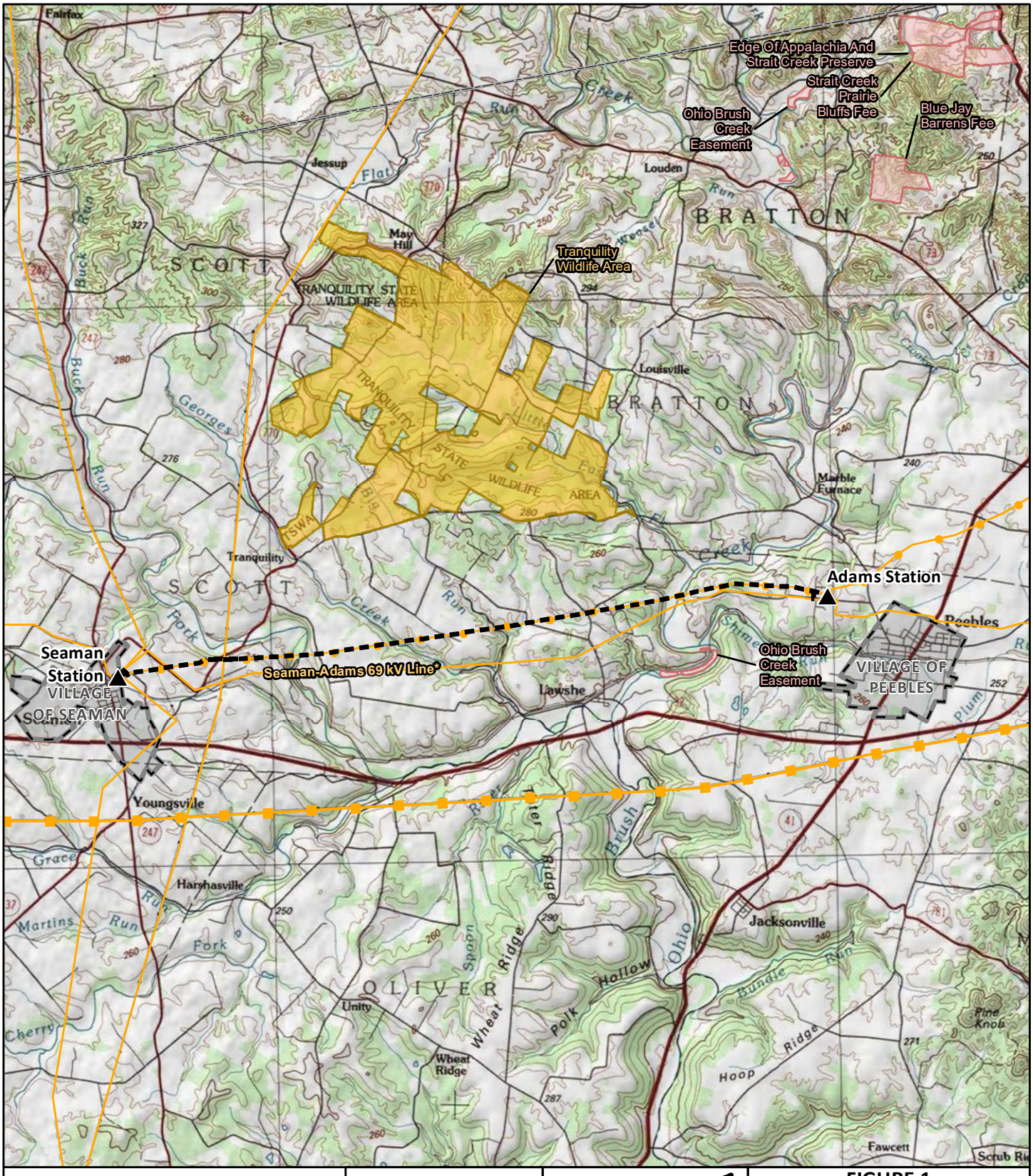
B(10)(g) Unusual Conditions

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.

[1] Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio.

APPENDIX A Project Figures



LEGEND:

- Existing Substation
- Preferred Route
- Existing Transmission Line
  - 69 kV and Lower
  - 138 kV
  - 345 kV
- Municipal Boundary
- State Land
- Conservation Easement

*Existing Seaman-Adams 69 kV transmission line to be retired. Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio

Data Sources: AEP, USGS, PennWell

Coordinate System and Datum
NAD 83 State Plane Ohio North

September 30, 2020

FIGURE 1
TOPOGRAPHIC OVERVIEW MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Seaman-Adams 138 kV Transmission Line Rebuild Project

0 4,000 8,000
Feet

LEGEND:

- Existing Substation
- Proposed Structure
- Preferred Route

Existing Transmission Line
- 69 kV and Lower
- 138 kV
- 345 kV

Municipal Boundary

*Existing Seaman-Adams 69 kV transmission line to be retired. Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio

Data Sources or Notes:
AEP, USGS, PennWell, OGRIP, NAIP

Coordinate System and Datum
NAD 83 State Plane Ohio South

September 30, 2020

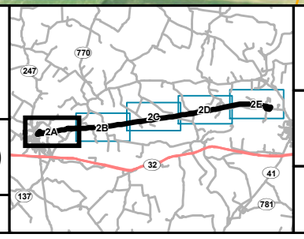


FIGURE 2A
AERIAL MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Seaman-Adams 138 kV Transmission Line Rebuild Project

0 500 1,000
Feet

LEGEND:

- Existing Substation
- Proposed Structure
- Preferred Route

Existing Transmission Line
- 69 kV and Lower
- 138 kV
- 345 kV

Municipal Boundary

*Existing Seaman-Adams 69 kV transmission line to be retired. Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio

Data Sources or Notes:
AEP, USGS, PennWell, OGRIP, NAIP

Coordinate System and Datum
NAD 83 State Plane Ohio South

September 30, 2020

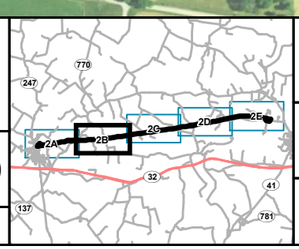


FIGURE 2B
AERIAL MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Seaman-Adams 138 kV Transmission Line Rebuild Project

0 500 1,000
Feet

LEGEND:

- Existing Substation
- Proposed Structure
- Preferred Route

Existing Transmission Line

- 69 kV and Lower
- 138 kV
- 345 kV

Municipal Boundary

*Existing Seaman-Adams 69 kV transmission line to be retired. Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio

Data Sources or Notes:
AEP, USGS, PennWell, OGRIP, NAIP

Coordinate System and Datum
NAD 83 State Plane Ohio South

September 30, 2020

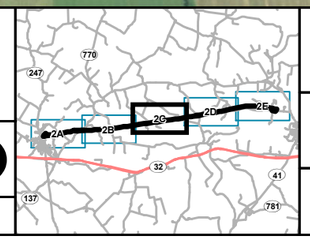
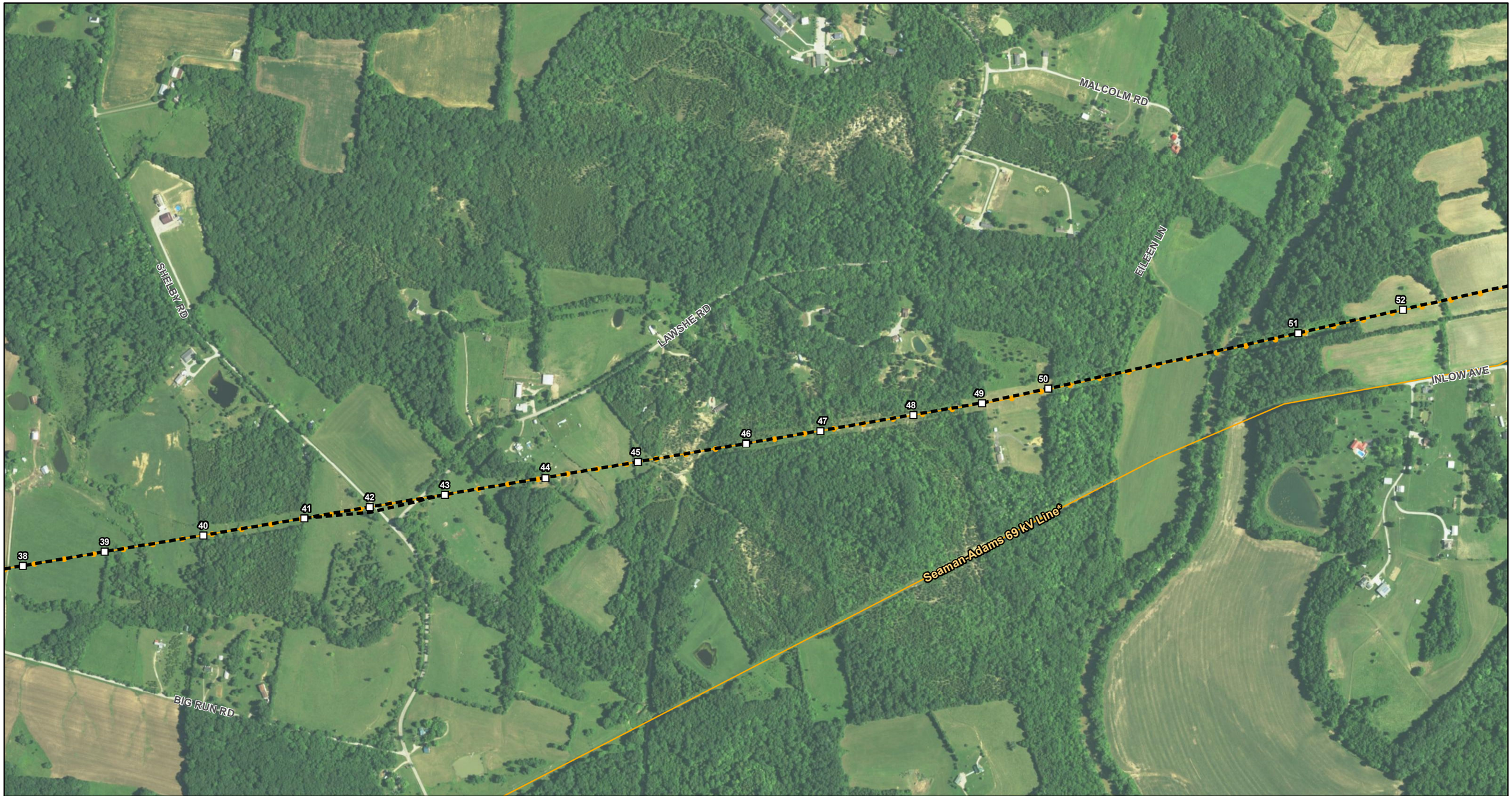


FIGURE 2C
AERIAL MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY™

Seaman-Adams 138 kV Transmission Line Rebuild Project

0 500 1,000
Feet



LEGEND:

- Existing Substation
- Proposed Structure
- Preferred Route

Existing Transmission Line
- 69 kV and Lower
- 138 kV
- 345 kV

Municipal Boundary

*Existing Seaman-Adams 69 kV transmission line to be retired. Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio

Data Sources or Notes:
AEP, USGS, PennWell, OGRIP, NAIP

Coordinate System and Datum
NAD 83 State Plane Ohio South

September 30, 2020

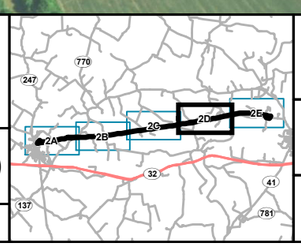


FIGURE 2D
AERIAL MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Seaman-Adams 138 kV Transmission Line Rebuild Project

0 500 1,000
Feet

LEGEND:

- Existing Substation
- Proposed Structure
- Preferred Route

Existing Transmission Line
- 69 kV and Lower
- 138 kV
- 345 kV

Municipal Boundary

*Existing Seaman-Adams 69 kV transmission line to be retired. Existing distribution within the Seaman-Adams 69 kV transmission line ROW will remain and be transferred to AEP Ohio

Data Sources or Notes:
AEP, USGS, PennWell, OGRIP, NAIP

Coordinate System and Datum
NAD 83 State Plane Ohio South

September 30, 2020

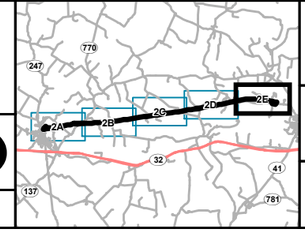


FIGURE 2E
AERIAL MAP

AEP OHIO TRANSMISSION COMPANY
An AEP Company
BOUNDLESS ENERGY

Seaman-Adams 138 kV Transmission Line Rebuild Project

0 500 1,000
Feet

APPENDIX B PJM Submittal and 2020 LTFR

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

1.	**LINE NAME AND NUMBER:**	Adams-Seaman 138kV, 18298 (s1621)
2.	**POINTS OF ORIGIN AND TERMINATION**	Adams, Seaman; INTERMEDIATE STATION - None
3.	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	8.5 mi / 100 ft / 2 circuit
4.	**VOLTAGE: DESIGN / OPERATE**	138kV / 138kV & 138kV / 69kV
5.	**APPLICATION FOR CERTIFICATE:**	Letter of Notification to be filed 2019
6.	**CONSTRUCTION:**	2021
7.	**CAPITAL INVESTMENT:**	$15M
8.	**PLANNED SUBSTATION:**	NAME - N/A; TRANSMISSION VOLTAGE - N/A; ACREAGE - N/A; LOCATION - N/A
9.	**SUPPORTING STRUCTURES:**	Steel Monopole
10.	**PARTICIPATION WITH OTHER UTILITIES**	N/A
11.	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	Rebuild of existing lines
12.	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Increased risk of failure
13.	**MISCELLANEOUS:**	N/A

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

1.	**LINE NAME AND NUMBER:**	Adams-Seaman 69kV, 22117 (s1621)
2.	**POINTS OF ORIGIN AND TERMINATION**	Adams, Seaman; INTERMEDIATE STATION - Lawshe Switch
3.	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	8.5 mi / 100 ft / 2 circuit
4.	**VOLTAGE: DESIGN / OPERATE**	138kV / 138kV & 138kV / 69kV
5.	**APPLICATION FOR CERTIFICATE:**	LON to be filed in 2019
6.	**CONSTRUCTION:**	2020
7.	**CAPITAL INVESTMENT:**	$9M
8.	**PLANNED SUBSTATION:**	NAME - N/A; TRANSMISSION VOLTAGE - N/A; ACREAGE - N/A; LOCATION - N/A
9.	**SUPPORTING STRUCTURES:**	Steel Monopole
10.	**PARTICIPATION WITH OTHER UTILITIES**	N/A
11.	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	Rebuild of existing lines
12.	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Increased risk of failure
13.	**MISCELLANEOUS:**	N/A

AEP Transmission Zone: Supplemental Waverly-Adams-Seaman 138 kV Line Rebuild

Problem Statement:

Equipment Material/Condition/Performance/Risk:

The 32.8 mile Waverly-Adams-Seaman 138 kV line was built in 1954 with 336 ACSR conductor (150 MVA rating). On the 244 structures on this line, there are 153 open conditions. There have been over 1 Million customer minutes of interruption in a 3-year period. The conditions include: rotten cross-arms, burnt/broken insulators, and loose/broken conductor hardware. The average duration of sustained outage is 2.8 hours.

The majority of the Adams-Seaman 69kV line was built in 1939 with 336 ACSR (75 MVA rating). The line extends 11.9 miles radially from Seaman to serve Sardinia. On the line's 440 structures, there are 401 open conditions. Of the 401 conditions between Adams and Sardinia, approximately 88 conditions are in the Adams-Seaman section (97 structures). There have been 8 momentary and 5 sustained outages on this circuit over the last 3 years. The 69kV line is needed to serve Adams Coop's 69-12kV Lawshe load, and to provide a back up source for Seaman and Adams.

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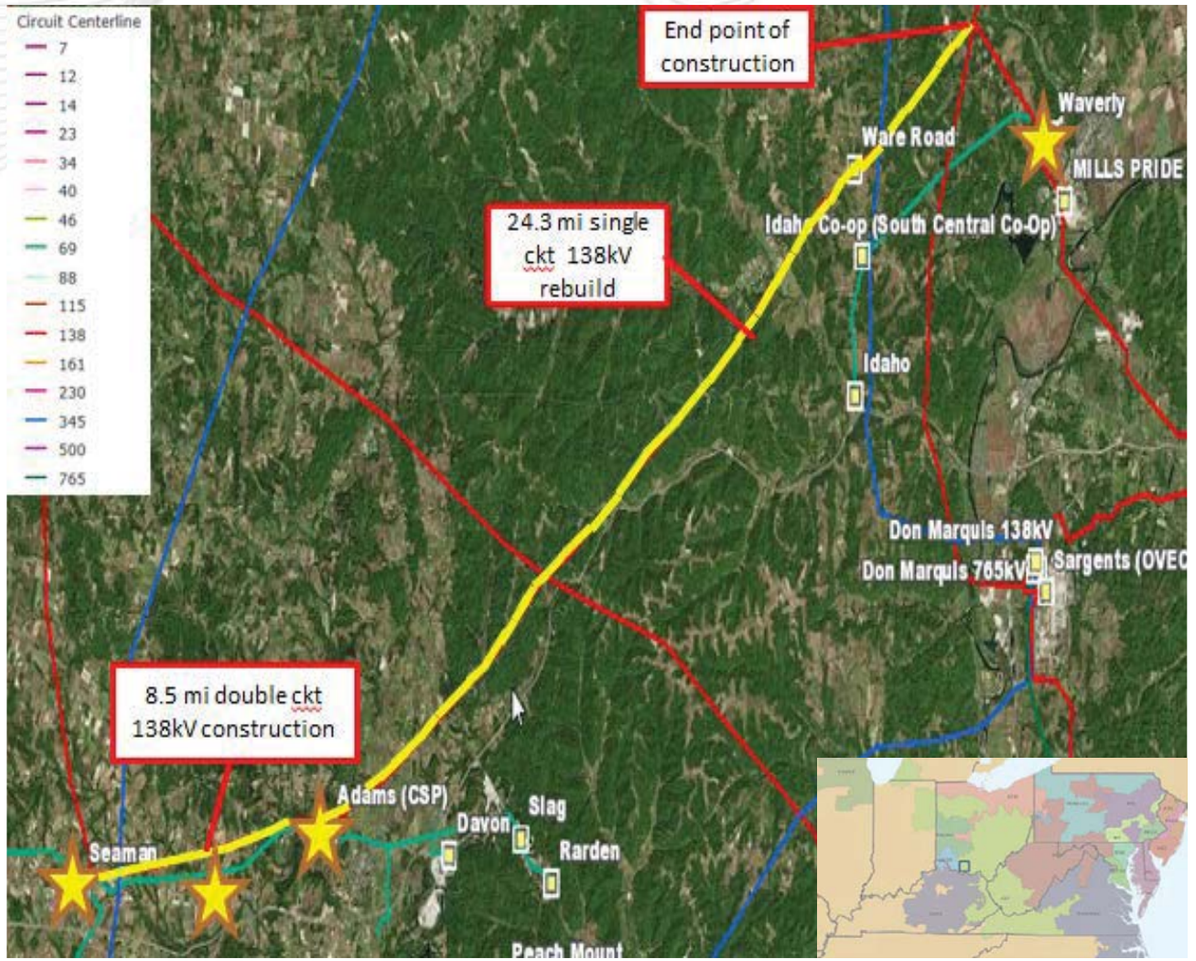

AEP Transmission Zone: Supplemental
Waverly-Adams-Seaman 138 kV Line Rebuild

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Potential Solution

Rebuild the 138kV line from Waverly to Adams utilizing 1033.5 ACSR (296 MVA). The rebuild will begin at structure 22 west of Waverly where the line changes to the Waverly-Ross line and continue 24.3 miles to Adams Substation. The remaining 3.1-mile section from structure 22 to Waverly is newer double ckt construction and was not identified for renewal at this time. Remove old line after rebuild complete. **Estimated Cost:** $42.0M

There are two independent lines less than 1/2 mile apart between Seaman and Adams, one 138kV and one 69kV. Since both of the lines are in need of repair, the lines will be rebuilt as a double circuit for approximately 8.5 miles. Both lines will use 1033.5 ACSR. Remove old lines after rebuild complete. There will also need to be a short single ckt tap for Lawshe. **Estimated Cost:** $23.0M

A three-way POP switch structure will be constructed outside Lawshe substation. **Estimated Cost:** $1.0M

Total Estimated Transmission Cost: $66.0M

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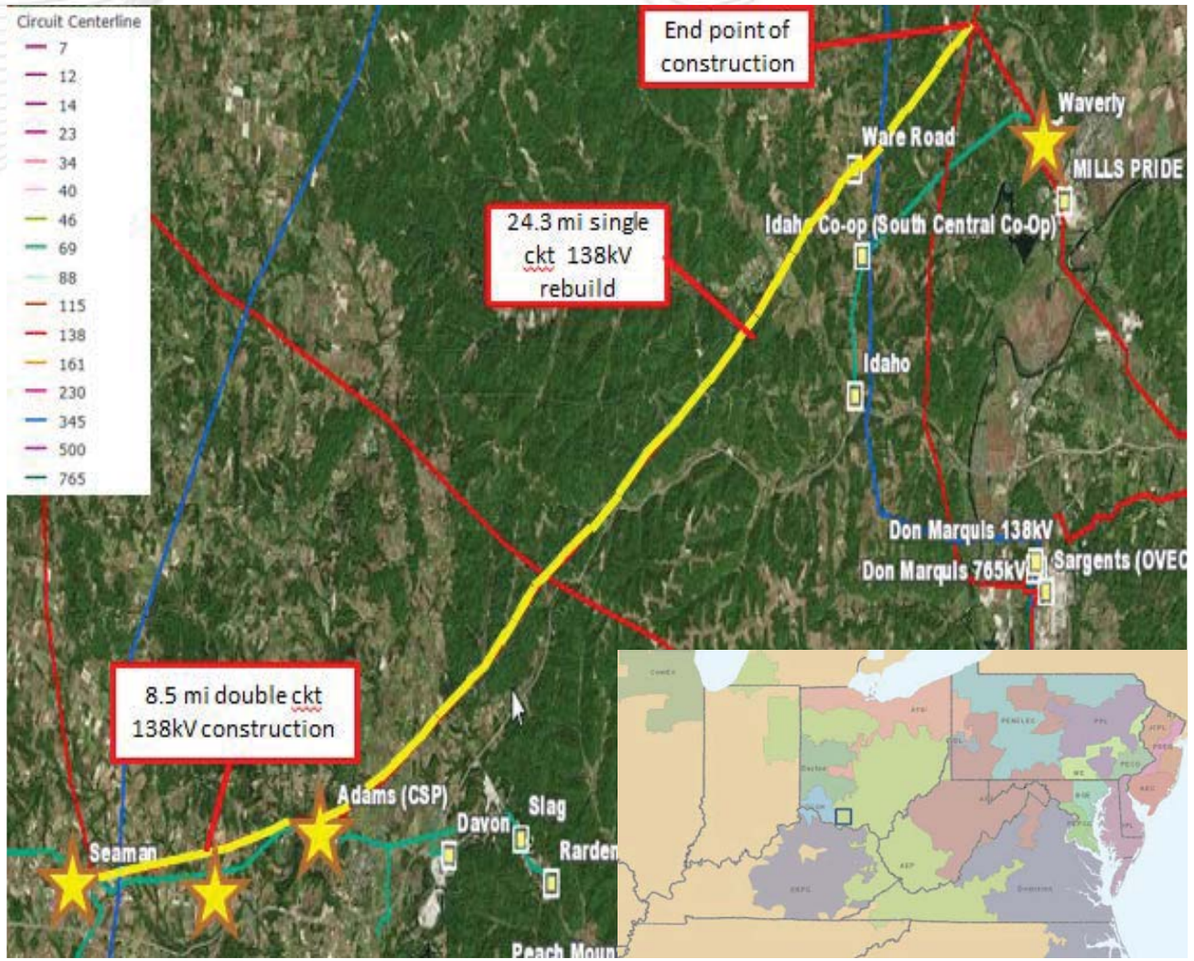


AEP Transmission Zone: Supplemental Waverly-Adams-Seaman 138 kV Line Rebuild

Continued from previous slide…

Alternatives:

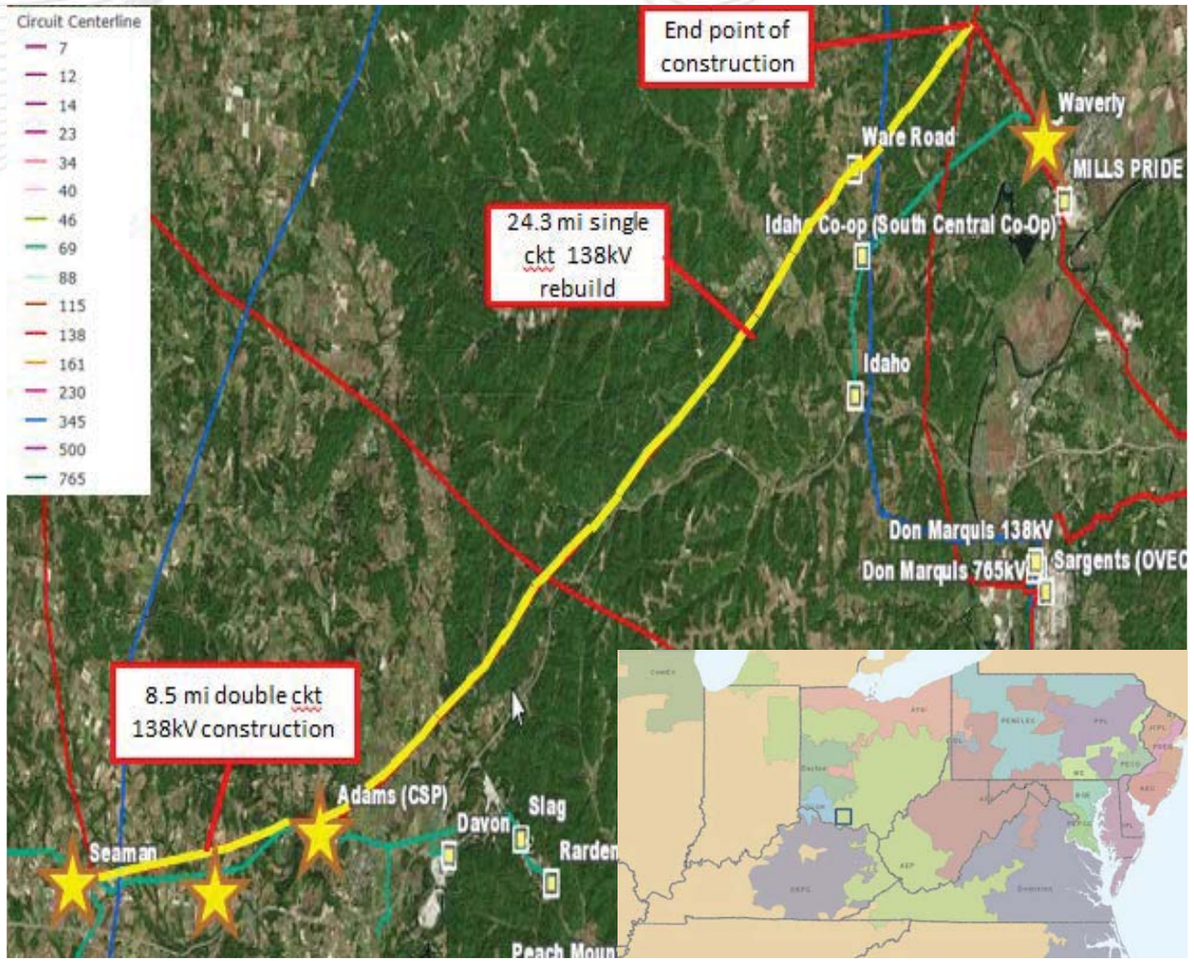
Rebuild 4.3 miles from Waverly to Ware double circuit. Install a new 4-CB ring bus substation at the existing junction of the 138kV Marquis-Ross and Waverly-Adams lines. Install new 3-CB ring bus substation at the junction of the 138kV Millbrook Park-Hillsboro and Adams-Waverly lines. Retire 12 mile section from Ware to the 138kV Hillsboro-Millbrook Park line junction. Rebuild the 8 miles Adams to the new station on the Hillsboro-Millbrook Park line. Rebuild the Seaman-Adams line the same as the proposed project. This project was not chosen due to cost and the Ware Rd station would be on a double circuit line. Estimated Cost: $70M

Rebuild 4.3 miles from Waverly to Ware double circuit. Install new 4-CB ring bus substation at the existing junction of the 138kV Marquis-Ross and Waverly-Adams lines. Retire the 20 mile section from Ware to Adams. Construct a new 345-138kV substation near Seaman, tapping the 345kV Stuart-Atlanta line. Rebuild the Seaman-Adams 138kV line as a double circuit and rebuild the Seaman-Adams 69kV line in-place. This project was not chosen due to cost. Estimated Cost: $101M

Rebuild the 138kV and 69kV lines between Seaman and Adams individually along their existing centerlines. Install a new switch at the Lawshe Tap. This project was not chosen due to cost. Estimated Cost: $76M

Projected In-service: 06/01/2021

Project Status: Engineering



Appendix C Property Parcel Number Table

Property Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
050-23-04-014.000	Yes
050-23-04-015.000	Yes
050-00-00-010.000	Yes
050-00-00-009.000	Yes
Silcott Road	
050-00-00-065.000	Yes
050-00-00-004.000	Yes
050-00-00-066.000	Yes
State Route 770	
050.00-00-001.000	Yes
051-00-00-016.000	Yes
State Route 770	
051-00-00-017.000	Yes
051-00-00-014.000	Yes
McCreight Road	
051-00-00-004.000	Yes
Nichols Ridge Road	
051-00-00-003.000	Yes
052-00-00-008.000	Yes
052-00-00-035.000	Yes
052-00-00-005.000	Yes
052-00-00-007.012	Yes
052-00-00-007.016	Yes
052-00-00-007.003	Yes
052-00-00-007.017	Yes
052-00-00-007.013	Yes
052-00-00-007.007	Yes
052-00-00-007.006	Yes
052-00-00-006.000	Yes
Dotson Road	
052-00-00-004.000	Yes
052-00-00-003.000	Yes
039-00-00-067.000	Yes
052-00-00-002.000	Yes
052-00-00-290.000	Yes
Big Run Road	
053-00-00-029.000	Yes
053-00-00-028.001	Yes
053-00-00-028.001	Yes
053-00-00-028.001	Yes
053-00-00-028.002	Yes
Shelby Road	
053-00-00-025.000	Yes
Lawshe Road	

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

Property Parcel Number	Easement Agreement/Option Obtained* (Yes/No)
053-00-00-024.000	Yes
053-00-00-024.001	Yes
053-00-00-024.002	Yes
053-00-00-023.000	Yes
053-00-00-019.002	Yes
053-00-00-018.000	Yes
053-00-00-017.020	Yes
Eileen Road	
041-00-00-045.000	Yes
041-00-00-045.000	Yes
Malcom Road	
041-00-00-041.000	Yes
041-00-00-046.000	Yes
041-00-00-042.000	Yes
041-00-00-043.000	Yes
053-00-00-015.000	Yes
Water Works Road	
041-40-05-002.000	Yes
041-40-05-004.000	Yes
041-40-05-003.000	Yes
041-40-05-007.000	Yes
041-40-05-003.000	Yes
041-40-03-005.000	Yes
041-40-03-006.000	No
041-40-03-007.000	No
041-40-04-001.000	Yes
Avery Road	
041-40-02-005.000	No
054-00-00-009.000	Yes
054-00-00-008.000	Yes
041-40-02-003.000	Yes
041-40-02-004.000	Yes
041-40-02-002.000	Yes
041-40-02-006.000	Yes
041-40-02-001.000	Yes
041-00-00-054.015	Yes
041-00-00-054.014	Yes

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

APPENDIX D Agency Correspondence

Ohio Division of Wildlife
Raymond W. Petering, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

December 13, 2016

Dan Godec
Stantec Consulting Services, Inc.
11687 Lebanon Rd.
Cincinnati, OH 45241

Dear Mr. Godec,

I have reviewed the Natural Heritage Database for the Waverly-Adams-Seaman 138 kV Transmission Line Rebuild project area, including a one mile radius, in Scott, Meigs and Franklin Townships, Adams County and Sunfish, Benton, Pebble and Pee Pee Townships, Pike County, Ohio. The numbers/letters on the list below correspond to the areas marked on the accompanying map. Common name, scientific name and status are given for each species.

A. Tranquility Wildlife Area – ODNR Division of Wildlife
B. Chalet Nivale/Bacon Flats – Highlands Nature Sanctuary
C. Appalachian Highway Cliffs Conservation Site
D. Brush Creek State Forest – ODNR Division of Forestry (several parcels)
1. Mussel Bed
2. *Liatris squarrosa* – Scaly Blazing-star, potentially threatened
3. Cave or Cavern
Natural Bridge or Arch
Asplenium ruta-muraria – Wall-rue, threatened
Viola walteri – Walter's Violet, threatened
Thuja occidentalis – Arbor Vitae, potentially threatened
Draba cuneifolia – Wedge-leaved Whitlow-grass, threatened
Draba reptans – Carolina Whitlow-grass, threatened
Ranunculus fascicularis – Early Buttercup, threatened
Cardamine dissecta – Narrow-leaved Toothwort, potentially threatened
4. *Silene caroliniana* ssp. w*herryi* – Wherry's Catchfly, threatened
5. *Silene caroliniana* ssp. w*herryi* – Wherry's Catchfly, threatened
6. *Notropis boops* – Bigeye Shiner, threatened
7. *Potamogeton tennesseensis* – Tennessee Pondweed, threatened
8. *Potamogeton tennesseensis* – Tennessee Pondweed, threatened

A Conservation Site is an area deemed by the Natural Heritage Program to be a high quality natural area not currently under formal protection. It may, for example, harbor one or more rare species,

be an outstanding example of a plant community or have geologically significant features, etc. These sites may be in private ownership and our listing of them does not imply permission for access.

We are unaware of any scenic rivers, state nature preserves or parks or national wildlife refuges, parks or forests within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

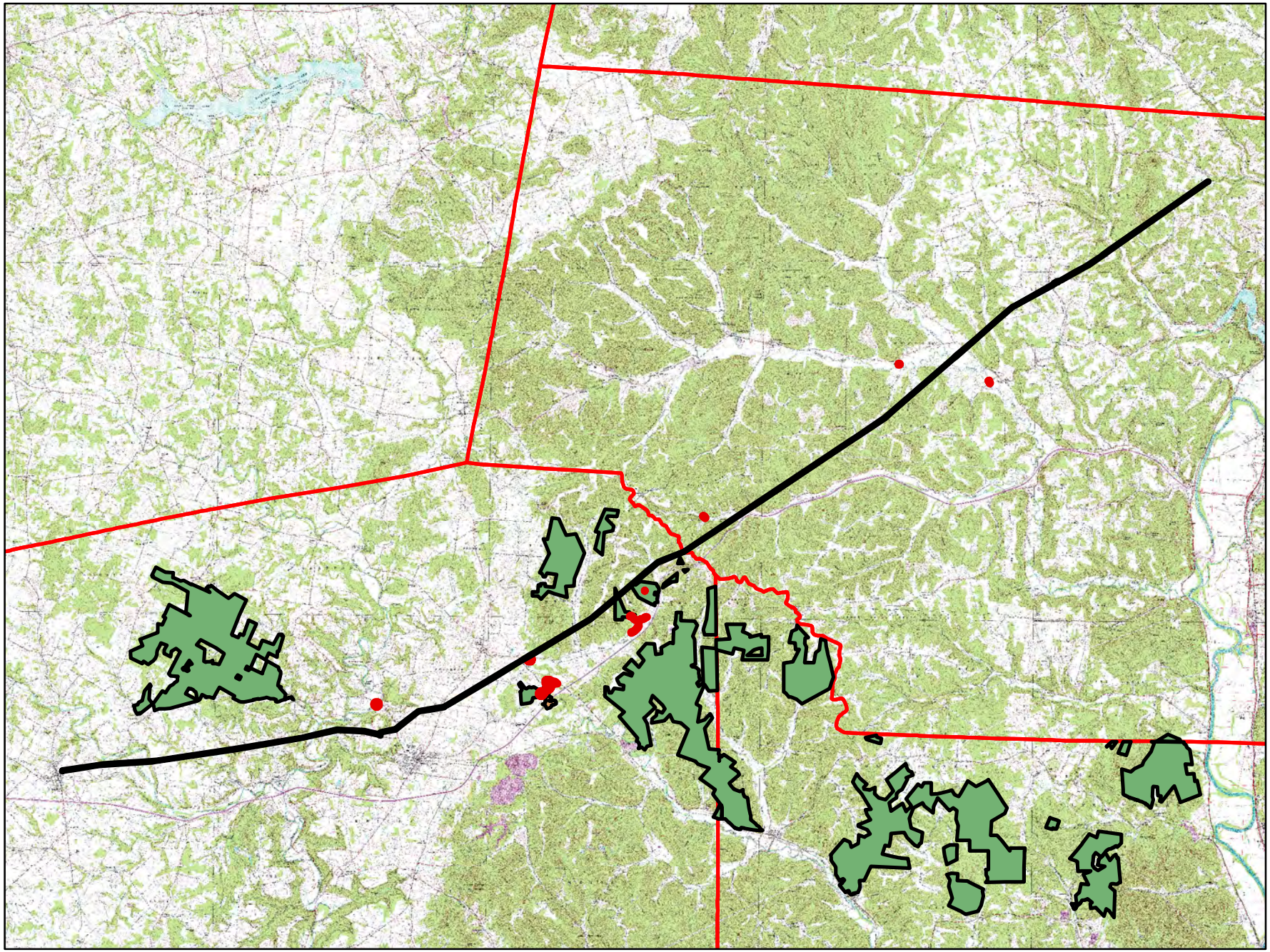
Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

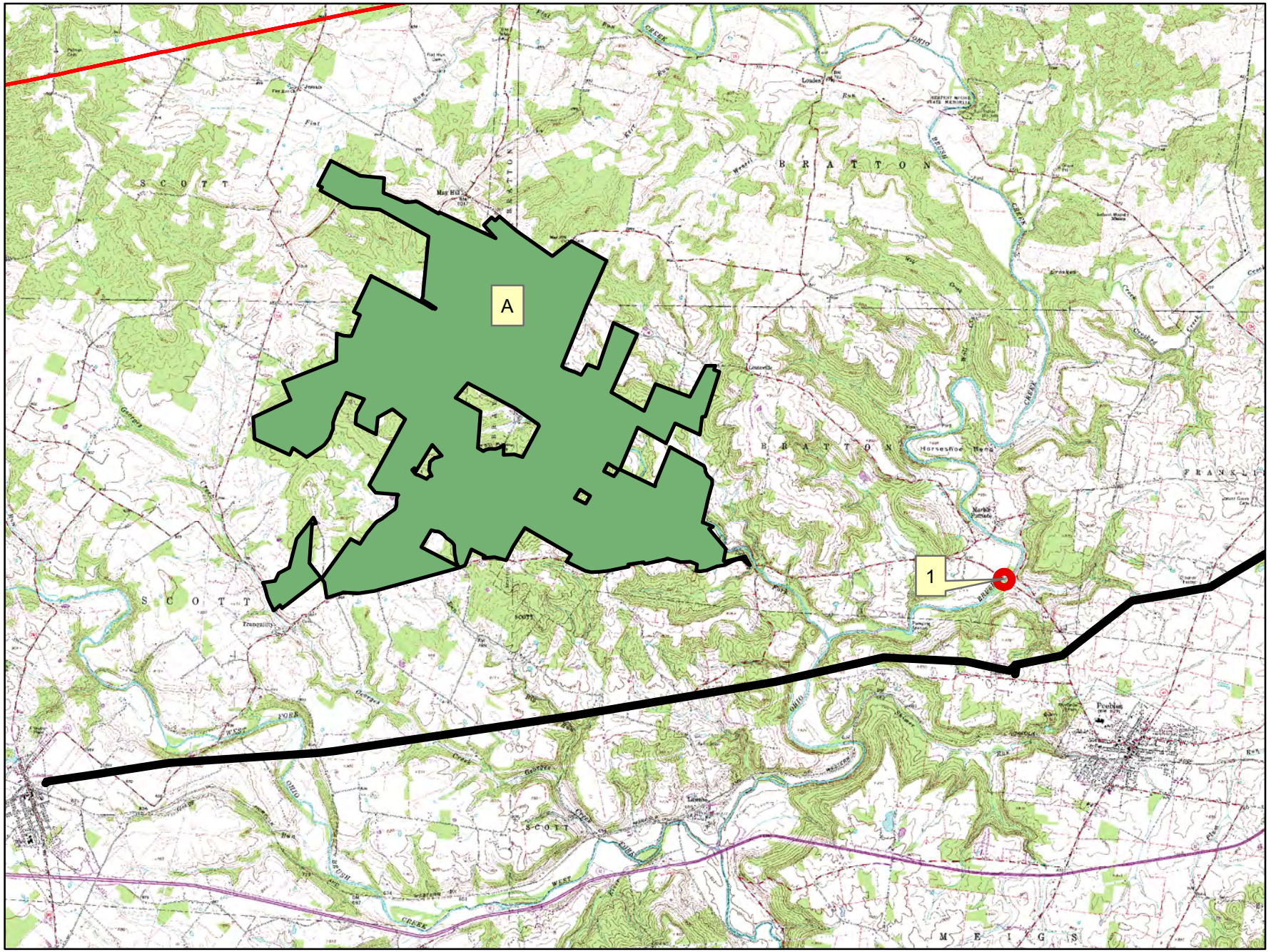
Debbie Woischke

Debbie Woischke
Ohio Natural Heritage Program

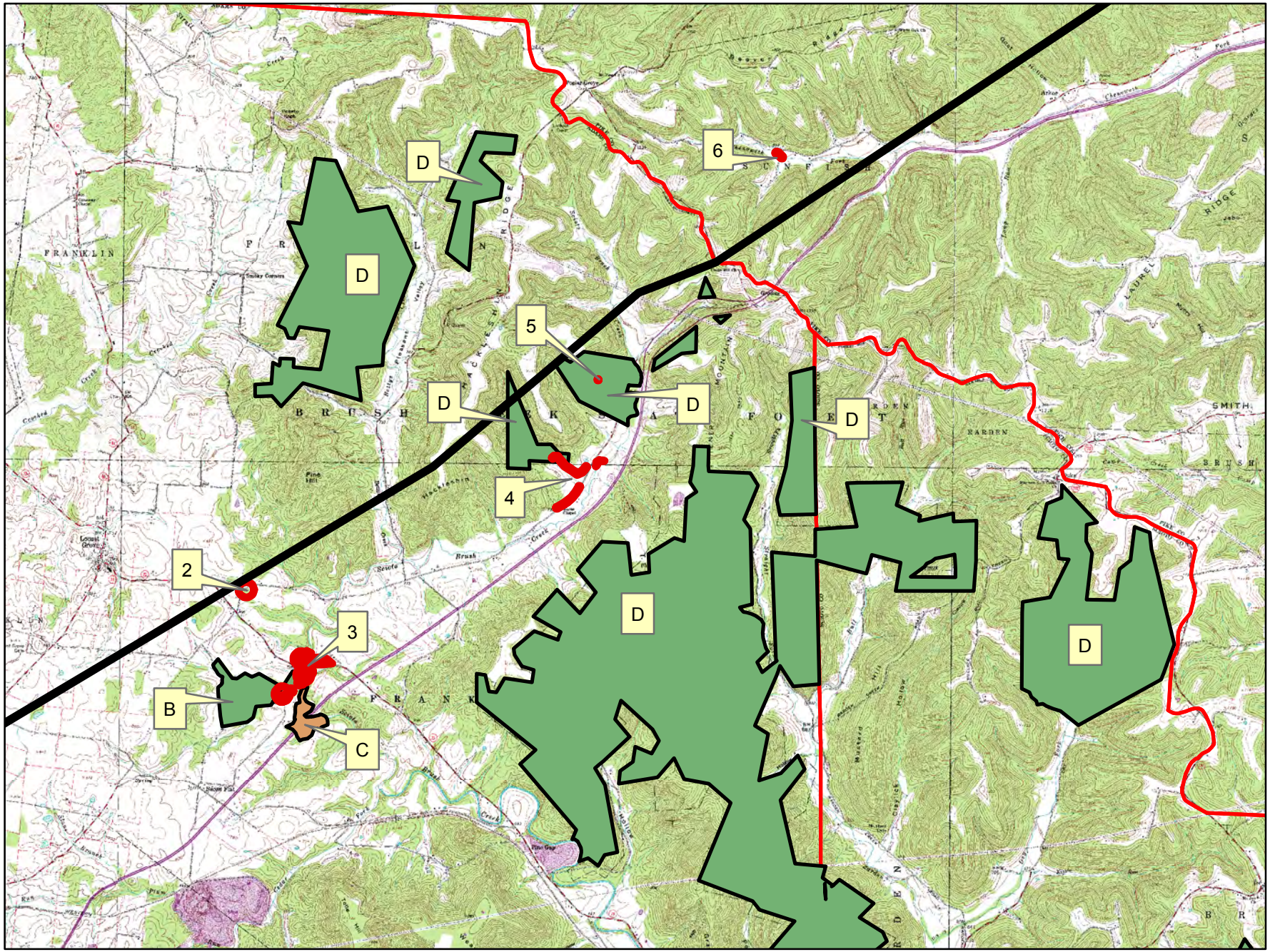
Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



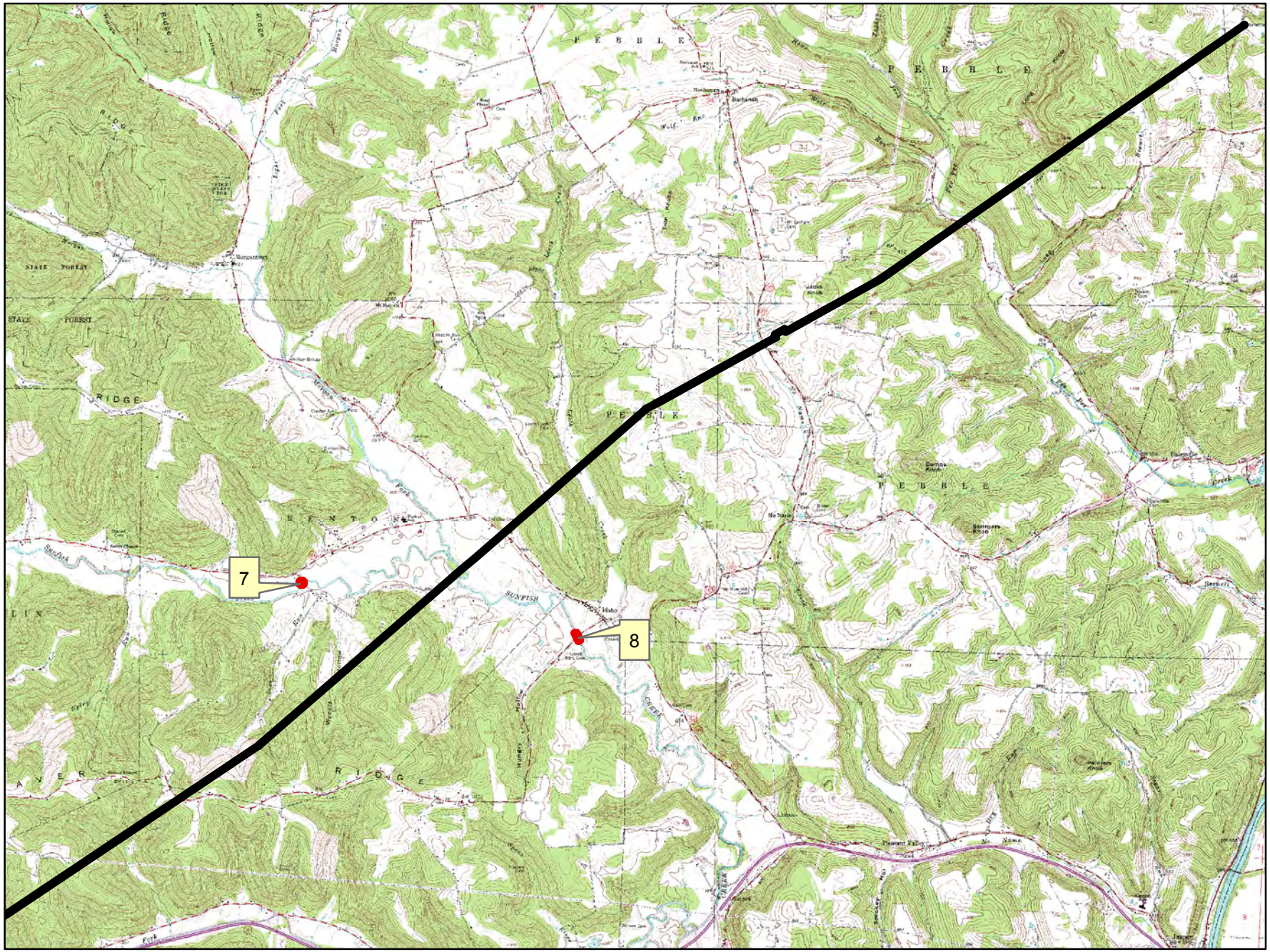
Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



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

February 24, 2017

Dan Godec
Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati, Ohio 45241

Re: 17-053; Request for Environmental Review, Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project

Project: The proposed consists of the rebuilding of approximately 32.8 miles of the Waverly-Adams-Seaman 138 kV transmission line.

Location: The proposed project is located in Scott, Meigs and Franklin Townships, Adams County, and Sunfish, Benton, Pebble and Pee Pee Townships, Pike 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 data request response dated December 16, 2016 is included on pages 10-15 of the project documentation.

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 any to cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the 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 clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the Northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the yellow sandshell (*Lampsilis teres*), a state endangered mussel, the washboard (*Megalonaias nervosa*), a state endangered mussel, the butterfly (Ellipsaria lineolata), a state endangered mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the ebonyshell (*Fusconaia ebenus*), a state endangered mussel, the wartyback (*Quadrula nodulata*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2016), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at:

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

The project is within the range of the shortnose gar (*Lepisosteus platostomus*), a state endangered fish, the popeye shiner (*Notropis ariommus*), a state endangered fish, the goldeye (*Hiodon alosoides*), a state endangered fish, the shovelnose sturgeon (S*caphirhynchus platorynchus*), a state endangered fish, the channel darter (*Percina copelandi*), a state threatened fish, the blue sucker (*Cycleptus elongatus*), a state threatened fish, the bigeye shiner (*Notropis boops*), a state threatened fish, the American eel (*Anguilla rostrata*), a state threatened fish, the Tippecanoe

darter (*Etheostoma tippecanoe*), a state threatened fish, and the river darter (*Percina shumardi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, 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. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. The DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the project route. If suitable habitat is found to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by an approved herpetologist. Survey reports can be submitted to Nathan Reardon, DOW Compliance Coordinator at Nathan.reardon@dnr.state.oh.us.

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. The DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the project route. If suitable habitat is found to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by an approved herpetologist. Survey reports can be submitted to Nathan Reardon, DOW Compliance Coordinator at Nathan.reardon@dnr.state.oh.us.

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

The project is within the range of the Kramer's cave beetle *Pseudanophthalmus krameri*), a state endangered species, and the Ohio cave beetle (*Pseudanophthalmus ohioensis*), a state endangered species. These species are found only in caves. The Ohio Cave Protection Law, Section 1517.21 of the Ohio Revised Code, protects caves from impacts, in turn, protecting the habitat of these species. Therefore, this project is not likely to have an impact on these 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/water-use-planning/floodplain-management#PUB

Forestry: The Division of Forestry has the following comments.

The proposed project will occur in part on Brush Creek State Forest. If access to Brush Creek State Forest land is necessary, those activities should be coordinated with the Forest Manager, Dale Egbert (Charles.Egbert@dnr.state.oh.us, 740-858-6685), in order to obtain a special use permit.

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
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

Ohio Division of Wildlife
APPROVED HERPETOLOGISTS

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

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

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

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

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

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

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

Ralph Pfingsten
347 Pineview Circle
Berea, Ohio 44017
rap347@wideopenwest.com
440-243-7568

Tim O. Matson
5696 Matson Rd
Geneva, OH 44041
tmatson@cmnh.org
440-417-8196

Jeff Davis
625 Crescent Road
Hamilton, Ohio 45013
ohiofrogs@gmail.com
513-868-3154

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

Doug Wynn
241 Chase Street, Apt. A3L
Russell's Point, Ohio 43348
Sistrurus@aol.com
614-306-0313

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

October 2016

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

Godec, Daniel

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Monday, December 19, 2016 12:44 PM
To: Godec, Daniel
Subject: Waverly-Adams-Seaman 138 kV Trans Line Rebuild, Pike & Adams Co. (REVISED)

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-0407

Dear Mr. Godec,

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.

The proposed project lies within the range of **running buffalo clover** (*Trifolium stoloniferum*), a federally listed endangered species. This plant can be found in partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails. Running buffalo clover requires periodic disturbance and a somewhat open habitat to successfully flourish, but cannot tolerate full-sun, full-shade, or severe disturbance. If suitable habitat is present, we recommend that surveys for this species be conducted by a trained botanist in May or June when the plant is in flower. The survey must be coordinated with this office in advance.

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 Office Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

From: Finfera, Jennifer
To: Amy J Toohey
Subject: [EXTERNAL] Waverly-Ware Road and Ware Road-Seaman
Date: Friday, June 15, 2018 10:23:38 AM

June 15, 2018

Tails: 03E15000-2017-TA-0407

Amy,

We have reviewed the running buffalo clover presence/absence surveys provided for the Waverly to Ware Road and Ware Road to Seaman projects and have no objection to the survey results and conclusions. No running buffalo clover was identified during either survey.

Thank you for your coordination on this project.

--
Jenny Finfera
Wildlife Biologist
Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230

Phone: 614-416-8993 ext.13
Fax: 614-416-8994

OHIO HISTORY CONNECTION

In reply refer to
2017-PIK-37708

February 17, 2017

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

RE: Waverly-Ware Road 138kV Transmission Line Project, Pebble and Pee Pee Townships, Pike County, Ohio

Dear Mr. Weller:

This is in response to the receipt, on January 27, 2017, of the *Phase I Cultural Resource Management Investigations for the 7.5 km (4.7 mi) Waverly-Ware Road 138kV Transmission Line Project in Pebble and Pee Pee Townships, Pike County, Ohio*. The comments of the Ohio State Historic Preservation Office (SHPO) are 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]).

A literature review, visual inspection, surface collection and shovel test unit excavation was completed as part of the Phase I Archaeological Investigations. No archaeological sites were identified during the field survey. The field reconnaissance and visual inspection of the project resulted in the re-identification of Dick Cemetery (OGSID 9789). The cemetery was recorded as being located further south and east of its currently mapped location. Gravestone remnants identified during field survey confirmed the location. The newly identified location of the cemetery brings it closer to the project area and directly adjacent to Structure #42. We recommend the new location of the cemetery be noted on any plans and care be taken during construction to not impact the cemetery.

Based on the information provided, I agree with the recommendation that no further archaeological work is necessary. No further coordination is required regarding the archaeological resources unless the project changes or archaeological remains are discovered during the course of the project. In such a situation, this office should be contacted as per 36 CFR 800.13.

The cultural historic investigations consisted of a systematic survey of all properties 50 years of age or older that are situated within 1,000 feet of the centerline of the proposed project. The results of the field survey identified four (4) individual properties within the survey Area of Potential Effects that may have a direct line-of-site to the project. Based on the information provided, we agree that the four (4) properties identified in the cultural historic investigations field survey are not eligible for inclusion in the National Register of Historic Places.

If you have any questions, please contact me at (614) 298-2000, or by e-mail at khorrocks@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

RPR Serial No: 1067124

OHIO HISTORY CONNECTION

In reply refer to
2017-ADA-38607

May 5, 2017

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

RE: Ware Road-Seaman 138kV Line Rebuild Project, Pebble/Benton/Sunfish Townships, Pike County, and Franklin/Meigs/Scott Townships, Adams County, Ohio

Dear Mr. Weller:

This is in response to the receipt, on April 7, 2017, of the *Phase I Archaeological Investigations for the 45.25 km (28.12 mi) Ware Road-Seaman 138kV Line Rebuild Project in Pebble/Benton/Sunfish Townships in Pike County and Franklin/Meigs/Scott Townships, Adams County, Ohio* and *History/Architecture Investigations for the Approximately 45.25 km (28.12 mi) Ware Road-Seaman 138kV Line Rebuild Project in Pebble/Benton/Sunfish Townships in Pike County and Franklin/Meigs/Scott Townships, Adams County, Ohio*. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are 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]).

During review of the *History/Architecture Investigations for the Approximately 45.25 km (28.12 mi) Ware Road-Seaman 138kV Line Rebuild Project in Pebble/Benton/Sunfish Townships in Pike County and Franklin/Meigs/Scott Townships, Adams County, Ohio* by Weller & Associates, Inc. (2017), we realized the alignment for the proposed project is a portion of the same alignment we reviewed and coordinated on February 21, 2017 for the report titled *History/Architecture Investigations for the Approximately 60.1 km (37.3 mi) Waverly-Adams-Seaman 138 kV Rebuild Project in Pike and Adams Counties, Ohio* (2017-PIK-37709, RPR Serial No. 1067125). Please refer to that coordination letter in regards to this History/Architecture submittal.

The following comments pertain to the *Phase I Archaeological Investigations for the 45.25 km (28.12 mi) Ware Road-Seaman 138kV Line Rebuild Project in Pebble/Benton/Sunfish Townships in Pike County and Franklin/Meigs/Scott Townships, Adams County, Ohio* by Weller & Associates, Inc. (2017).

A literature review, visual inspection, shovel probe excavation, surface collection and shovel test unit excavation was completed as part of the investigations. One (1) previously identified Ohio Archaeological Inventory (OAI) site is located within the project area. OAI#33AD0007, known as the McCullough Mound I, is located between Structures 195 and 196. W.K. Moorehead excavated the stone mound in 1896 and human remains were identified with no associated grave goods. OAI#33AD0007 was not identified in the field and shovel testing along the proposed project corridor found no cultural material. It is likely the stone mound has been completed demolished since its excavation in 1896 or the actual location of the mound is located elsewhere. We agree the proposed project will not impact OAI#33AD0007.

Seven (7) OAI sites were identified during this survey. OAI#33AD0420, 33AD0421, 33AD0424, and 33AD0426 represent prehistoric isolated finds. OAI#33AD0422, 33AD0423, and 33AD0425 are lithic scatters. None of the seven (7) OAI sites are eligible for listing in the National Register of Historic Places (NRHP). The site forms for OAI#33AD0420-33AD0426 have not yet been completed and

800 E. 17th Ave., Columbus, OH 43211-2474 • 614.297.2300 • ohiohistory.org

submitted to the survey manager. Please complete the associated site inventory as soon as possible. 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.

Based on the information provided, we agree the project will not affect historic properties and no further archaeological work is necessary. 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 as per 36 CFR 800.13.

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: 1068328, 1068329

In reply, refer to
2017-ADA-38607

September 2, 2020

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

RE: Seaman-Adams 138kV Transmission Line Rebuild Project – Addendum, Adams County, Ohio

Dear Mr. Weller:

This letter is in response to the correspondence received electronically on August 28, 2020 regarding the proposed Seaman-Adams 138kV Transmission Line Rebuild Project – Addendum, Adams 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 4906-5). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the *Addendum Phase I Investigations for Additional Areas Associated with the Seaman-Adams 138kV Transmission Line Rebuild Project in Adams County, Ohio* by Weller & Associates, Inc. (2020).

A literature review, visual inspection, surface collection, shovel probes and shovel test unit excavation was completed as part of the investigations. No previously identified archaeological resources are located within in the project area and no new archaeological sites were identified during survey. Our office agrees no additional archaeological investigation is needed.

Based on the information provided, we continue to agree that the project will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional 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: Amy Toohey, AEP (ajtoohey@aep.com)

RPR Serial No: 1085346

From: Nathan.Reardon@dnr.state.oh.us
To: Amy J Toohey
Cc: John.Kessler@dnr.state.oh.us; Ron Howard; Pattarin Jarupan
Subject: [EXTERNAL] RE: AEP Ware Road-Seaman Station 138kV Upgrade-Timber Rattlesnake Habitat Survey
Date: Monday, November 06, 2017 10:49:58 AM
Attachments: image001.png

Amy,

The DOW concurs with Mr. Wynn's assessment that timber rattlesnake habitat is not present along the Waverly-Ware project route. Therefore, this project is not likely to impact the timber rattlesnake, and no further coordination is necessary at this time.

Thank you,
Nathan

Nathan Reardon
Compliance Coordinator
ODNR - Division of Wildlife
2045 Morse Road, Bldg. G
Columbus, OH 43229-6693
Phone: 614-265-6741
Email: nathan.reardon@dnr.state.oh.us

From: Amy J Toohey [mailto:ajtoohey@aep.com]
Sent: Sunday, October 29, 2017 12:10 PM
To: Reardon, Nathan <Nathan.Reardon@dnr.state.oh.us>
Cc: Kessler, John <John.Kessler@dnr.state.oh.us>; Ron Howard <rmhoward@aep.com>; Pattarin Jarupan <pjarupan@aep.com>
Subject: RE: AEP Ware Road-Seaman Station 138kV Upgrade-Timber Rattlesnake Habitat Survey

Greetings:
Attached is the Waverly-Ware habitat report.

Thanks
Amy

From: Amy J Toohey
Sent: Sunday, October 29, 2017 12:07 PM
To: 'Nathan.Reardon@dnr.state.oh.us'
Cc: John.Kessler@dnr.state.oh.us; Ron Howard; Pattarin Jarupan
Subject: AEP Ware Road-Seaman Station 138kV Upgrade-Timber Rattlesnake Habitat Survey

Greetings:

AEP is proposing to rebuild the existing transmission 138kV from **Ware Road Substation (Pike County) to Seaman Station (Adams County)**. As a result of the literature review completed with ODNR, the potential of suitable Timber Rattlesnake exists in a portion of the project area.

AEP has worked with Doug Wynn regarding the completion of habitat surveys for the proposed projects. Attached is the habitat survey that was completed by Doug for the **Ware Road to Seaman Station 138kV** project area. Also attached is a copy of the previously prepared report from Waverly Station to Ware Road-no habitat was identified. The attached reports complete the Timber Rattlesnake Surveys for the limits of the literature review (ODNR letter attached).

As documented in the attached report, the **Ware Road to Seaman Station** project area contains 15 miles of suitable Timber Rattlesnake habitat and the rest of the project area does not contain suitable habitat.

We will continue to work with Doug Wynn regarding the 15 miles of suitable habitat as the construction schedule is developed and access roads confirmed. It is not anticipated that we will be able to complete an absence presence survey as recommended, but will work with Doug on a monitoring approach to construction in the identified 15 miles.

Following the review of the habitat survey if there are any questions or concerns please advise.

Thank you,
Amy

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY

AMY J TOOHEY | **ENVIRONMENTAL SPECIALIST PRIN**
AJTOOHEY@AEP.COM | D:614.552.1996 | C:614.565.1480
700 MORRISON ROAD, GAHANNA, OH 43230

From: Nathan.Reardon@dnr.state.oh.us
To: Amy J Toohey; John.Kessler@dnr.state.oh.us
Cc: Ron Howard
Subject: [EXTERNAL] RE: AEP Ware Seaman Timber Rattlesnake Winter Habitat survey
Date: Monday, April 02, 2018 3:28:22 PM
Attachments: image001.png

Amy,

Thank you for providing Mr. Wynn's survey report. The DOW concurs with Mr. Wynn's avoidance and minimization approach for the Ware Seaman rebuild project.

Thank you,
Nathan

Nathan Reardon
Compliance Coordinator
ODNR - Division of Wildlife
2045 Morse Road, Bldg. G
Columbus, OH 43229-6693
Phone: 614-265-6741
Email: nathan.reardon@dnr.state.oh.us

From: Amy J Toohey [mailto:ajtoohey@aep.com]
Sent: Monday, March 26, 2018 9:24 AM
To: Reardon, Nathan <Nathan.Reardon@dnr.state.oh.us>; Kessler, John <John.Kessler@dnr.state.oh.us>
Cc: Ron Howard <rmhoward@aep.com>
Subject: AEP Ware Seaman Timber Rattlesnake Winter Habitat survey

Greetings:

Attached is the Timber Rattlesnake Winter Habitat survey for the portion of the project area identified with suitable habitat however, no suitable overwintering sites were identified. AEP is proposing to rebuild the existing138kV transmission line from Ware Road Substation (Pike County) to Seaman Station (Adams County). We previously coordinated the habitat studies completed by Doug Wynn and ODNR concurred with the recommendations on November 6, 2017. The enclosed report reflects ODNR's comment regarding working with Doug Wynn regarding an avoidance and minimization approach.

As indicated in the report AEP will be working with Doug Wynn to implement the enclosed plan and to monitor the area during construction. We request your concurrence on the approach as presented in the report.

If you have any questions/concerns please let me know.

Thank you
Amy

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

AMY J TOOHEY | **ENVIRONMENTAL SPECIALIST PRIN**
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700 MORRISON ROAD, GAHANNA, OH 43230

From: Nathan.Reardon@dnr.state.oh.us
To: Amy J Toohey
Subject: [EXTERNAL] RE: Lark Sparrow Absence/Presence Surveys?
Date: Wednesday, April 25, 2018 2:00:47 PM
Attachments: image001.png

Amy,

As I mentioned, we have been looking at the distribution and habitat requirements for this species. Given the location, and the proposed impacts, I don't think it is necessary to continue with surveys for the lark sparrow as part of this project. If you would like to discuss or have any questions, please let me know.

Thank you,
Nathan

Nathan Reardon
Compliance Coordinator
ODNR - Division of Wildlife
2045 Morse Road, Bldg. G
Columbus, OH 43229-6693
Phone: 614-265-6741
Email: nathan.reardon@dnr.state.oh.us

From: Reardon, Nathan
Sent: Thursday, April 05, 2018 10:55 AM
To: 'Amy J Toohey' <ajtoohey@aep.com>
Subject: RE: Lark Sparrow Absence/Presence Surveys?

Amy,

Can you provide me a map of the areas that have been identified as potential habitat? I may be able to eliminate some of the areas. We have been working on an updated distribution for this species. We also have a draft protocol, very similar to the upland sandpiper protocol.

Thanks,
Nathan

Nathan Reardon
Compliance Coordinator
ODNR - Division of Wildlife
2045 Morse Road, Bldg. G
Columbus, OH 43229-6693
Phone: 614-265-6741

Email: nathan.reardon@dnr.state.oh.us

From: Amy J Toohey [mailto:ajtoohey@aep.com]
Sent: Monday, March 26, 2018 12:03 PM
To: Reardon, Nathan <Nathan.Reardon@dnr.state.oh.us>
Subject: Lark Sparrow Absence/Presence Surveys?

Greetings:

We have a project-Waverly Adams Seaman 138kV line where there is suitable habitat for the Lark Sparrow. This is the same project area that I previously sent you a copy of the Timber Rattlesnake survey. Is there any protocol for absence/presence survey for the Lark Sparrow? At present we are planning on walking the access road routes/work areas prior to construction starting for the day looking for Lark Sparrow nests during nesting season. The cost to do these surveys are a bit pricey and I was wondering if an Absence/Presence survey would be better/more effective.

Thanks
Amy

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700 MORRISON ROAD, GAHANNA, OH 43230

From: Nathan.Reardon@dnr.state.oh.us
To: Amy J Toohey
Subject: [EXTERNAL] RE: AEP Waverly-Ware and Ware Seaman 138kV Line
Date: Thursday, October 05, 2017 10:16:09 AM

Amy,

Thank you for providing the habitat assessment reports. The DOW concurs with Mr. Davis' assessment that suitable habitat is not present along the project route (both projects), and therefore the eastern spadefoot is not likely to be impacted by this project.

When submitting the reports, if it possible to reference the ODNR internal tracking number (17-053), it would help me with tracking and data management. If you have any questions, please let me know.

Thank you,
Nathan

Nathan Reardon
Compliance Coordinator
ODNR - Division of Wildlife
2045 Morse Road, Bldg. G
Columbus, OH 43229-6693
Phone: 614-265-6741
Email: nathan.reardon@dnr.state.oh.us

From: ajtoohey@aep.com [mailto:ajtoohey@aep.com]
Sent: Tuesday, October 03, 2017 9:20 AM
To: Reardon, Nathan <Nathan.Reardon@dnr.state.oh.us>; rmhoward@aep.com; pjarupan@aep.com; Kessler, John <John.Kessler@dnr.state.oh.us>
Subject: AEP Waverly-Ware and Ware Seaman 138kV Line

Greetings:

AEP will be replacing the existing 138kv Transmission line on essentially existing easement. As part of the ecological investigation it was determined that a potential for the Eastern Spadefoot Toad (Scaphiopus holbrookii) habitat may exist along the AEP Waverly Ware and Ware Seaman 138kV

transmission line, Pike and Adams County, Ohio. AEP contract through AECOM, Jeffery Davis to complbe a habitat assessment of the project areas.

Attached for your review/concurrence are two reports that contain the habitat studies for the segment of line from Waverly Station to Ware Road (Pike County) and the next study segment from Ware Road (Pike County) to Seaman Station (Seaman, Ohio). There were no suitable habitat areas for the Eastern Spadefoot Toad based on field reviews and results of the habitat assessment efforts/report.

Please advise if you need additional information to help with your review of the reports.

Thank you
Amy

File List :
AEP Eastern Spade Foot Toad-Waverly Ware-Ware Seaman Combined Reports.pdf

Click here to begin exchanging files.

Link expiration: 11/2/2017 12:00:00 AM

APPENDIX E Ecological Resources Inventory Report

Seaman-Adams 138 kV Transmission Line Rebuild Project, Adams County, Ohio

Ecological Resources Inventory Report

Prepared for:

AEP Ohio Transmission Company, Inc.
8600 Smiths Mill Road,
New Albany, OH 43054

Prepared by:

Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati, OH 45241

September 15, 2020

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1.0 Introduction

AEP Ohio Transmission Company, Inc. (AEP) is proposing to rebuild approximately 7.9 miles of the Seaman-Adams 138 kV electric transmission line and approximately 0.5 miles of the Seaman-Adams 69 kV electric transmission line in Adams County, Ohio (Figure 1, Appendix A). The Project will include a rebuild/upgrade of the transmission line within existing AEP right-of-way (ROW) and construction of the associated access roads needed to perform the line rebuild/upgrade activities (Figure 1, Appendix A). The existing ROW, proposed ROW, and the proposed access roads were surveyed for wetlands, waterbodies, and potential threatened, endangered, and rare species habitat by Stantec Consulting Services Inc. (Stantec) biologists on December 7-13, 2016, March 28-29, 2017, September 6, 2017, and August 3, 2020. The approximate locations of features located up to 50 feet outside of the survey corridor were also recorded during the field surveys, where landowner access was permitted. However, no data forms were collected on features that did not extend into the survey corridor. These features are shown on the Figure 2 maps in Appendix A as "approximate" wetlands, waterways (streams), open waters, and upland drainage features.

2.0 Methods

2.1 WETLAND DELINEATION

Prior to completing the field surveys, a desktop review of the Project area was conducted using U.S. Geological Survey (USGS) topographic mapping, National Wetlands Inventory (NWI) maps, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey data, and aerial imagery mapping. Stantec completed a wetland delineation study in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0) (USACE 2012). Wetland categories were classified using the Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001).

2.2 STREAM DELINEATION

Streams that demonstrated a continuously defined channel (bed and bank), ordinary high water mark (OHWM), and the disturbance of terrestrial vegetation were delineated within the Project area, per the protocols outlined in the USACE's *Guidance on Ordinary High Water Mark Identification* (Regulatory Guidance Letter, No. 05-05) (USACE 2005). Delineated streams were classified as ephemeral, intermittent, or perennial per definitions in the Federal Register/Vol. 67, No. 10 (USACE 2002) and determined as potential Waters of the U.S. (WOTUS) per "The Navigable Waters Protection Rule" published in the Federal Register/Vol. 85, No. 77 (USACE 2020). Functional assessment of streams identified within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) Headwater Habitat Evaluation Index (HHEI; OEPA 2018) and/or Qualitative Habitat Evaluation Index (QHEI; OEPA 2006). The centerline of each waterway (stream) was identified and surveyed using a handheld sub-meter accuracy GPS unit and mapped with GIS software. Additionally, the locations of ponds/open water features and upland drainage features (which lacked a continuously defined bed and bank/OHWM) identified within the Project area were also recorded with a sub-meter accuracy GPS unit during the field surveys.

2.3 RARE SPECIES

Prior to conducting the field surveys, Stantec contacted the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) for information regarding rare, threatened, or endangered species and their habitats of concern within the Project area and its vicinity (Appendix B – Agency Correspondence). To assess potential impacts to rare, threatened, and endangered species, Stantec scientists conducted a pedestrian reconnaissance of the proposed Project area, collected information on existing habitats within the Project area, and assessed the potential for these habitats to be used by these species.

3.0 Results

3.1 TERRESTRIAL HABITAT

Stantec completed field surveys within the Project area on December 7-13, 2016, March 28-29, 2017, September 6, 2017, and August 3, 2020, for potentially suitable habitats for threatened and endangered species. Figure 3 (Appendix A) shows the land cover, vegetation communities, and locations of any identified rare, threatened, or endangered species habitat observed within the Project area during the habitat assessment surveys. Representative photographs of the vegetation communities/habitats identified within the Project area are included in Appendix C of this report (photo locations of habitats are shown on Figure 3, Appendix A). Information regarding the vegetation communities/habitats identified within the Project area is provided in Table 1.

Table 1. Vegetation Communities and Land Cover Found within the Seaman-Adams 138 kV Transmission Line Rebuild Project Area, Adams County, Ohio

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
Agricultural Field	Extreme Disturbance/Ruderal Community (dominated by planted non-native row crop species, opportunistic invaders, and/or native highly tolerant taxa). Common plant species observed included corn (*Zea mays*) and soybeans (*Glycine max*).	No	35.3
Hay Field	Extreme Disturbance/Ruderal Community (dominated by planted non-native herbaceous species, opportunistic invaders, and/or native highly tolerant taxa). Common plant species observed included orchardgrass (*Dactylis glomerata*), white clover (*Trifolium repens*), alsike clover (*Trifolium hybridum*), tall fescue (*Schedonorus arundinaceus*), red clover (*Trifolium pratense*), and Carolina horsenettle (*Solanum carolinense*).	No	8.5
Pasture	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders and/or native highly tolerant taxa). Common plant species observed included tall fescue, giant ironweed (*Vernonia gigantea*), Queen Anne's lace (*Daucus carota*), Canada goldenrod (*Solidago canadensis*), red clover, Canada thistle	No	25.5

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
	(*Cirsium arvense*), broomsedge blustem (*Andropogon virginicus*), and yellow foxtail (*Setaria pumila*).		
New Field	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders or native highly tolerant taxa). Common plant species observed included Kentucky bluegrass (*Poa pratensis*), Canada goldenrod, tall fescue, perennial ryegrass (*Lolium perenne*), and common dandelion (*Taraxacum officianale*).	No	0.5
Old Field	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders and/or native highly tolerant taxa). Common plant species observed included Canada goldenrod, multiflora rosa (*Rosa multiflora*), Allegheny blackberry (*Rubus allegheniensis*), autumn olive (*Elaeagnus umbellata*), Queen Anne's lace, common milkweed (*Asclepias syriaca*), and annual ragweed (*Ambrosia artemisiifolia*).	No	18.4
Residential Lawn	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders, planted non-native species, and/or native highly tolerant taxa). Common plant species observed included narrowleaf plantain (*Plantago lanceolata*), common dandelion, Kentucky bluegrass, tall fescue, white clover, and Bermudagrass (*Cynodon dactylon*).	No	5.9
Existing Roadway	Extreme Disturbance/existing gravel and/or paved road. Little to no vegetation was observed in these areas.	No	1.5
Industrial	Extreme Disturbance/existing gravel and/or paved areas. Little to no vegetation was observed in these areas.	No	2.5
Mixed Early Successional/Second Growth Riparian Forest	Moderate Disturbance/Natural Community (dominated by native woody and herbaceous species and/or opportunistic invaders). Common plant species observed included American sycamore (*Platanus occidentalis*), boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), silver maple	No	2.9

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
	(*Acer saccharinum*), riverbank wildrye (*Elymus riparius*), jewelweed (*Impatiens capensis*), eastern cottonwood (*Populus deltoides*), and wingstem (*Verbesina alternifolia).*		
Mixed Early Successional/Second Growth Deciduous Forest	Moderate Disturbance/Natural Community (dominated by native woody and herbaceous species and/or opportunistic invaders). Common plant species observed included red maple (*Acer rubra*), multiflora rose, white oak (*Quercus alba*), Virginia creeper (*Parthenocissus quinquefolia*), white ash (*Fraxinus americana*), eastern poison ivy (*Toxicodendron radicans*), Amur honeysuckle (*Lonicera maackii*), shagbark hickory (*Carya ovata*), and American elm (*Ulmus americana*).	No	11.5
Second Growth Coniferous Forest	Moderate Disturbance/Natural Community (dominated by native woody and herbaceous species and/or opportunistic invaders). Common plant species observed included white pine (*Pinus strobus*), eastern redcedar (*Juniperus virginiana*), broomsedge bluestem, and tall fescue.	No	0.6
Palustrine Emergent Wetland	Moderate Disturbance/Natural Community (dominated by native herbaceous species and/or opportunistic invaders). Common plant species observed included broadleaf cattail (*Typha latifolia*), common rush (*Juncus effusus*), American water plantain (*Alisma subcordatum*), and spikerush (*Eleocharis* spp.).	No	0.04
		TOTAL	**113.14**

3.2 WETLANDS

Stantec completed field surveys for wetlands within the Project area on December 7-13, 2016, March 28-29, 2017, September 6, 2017, and August 3, 2020. Figure 2 (Appendix A) shows the wetlands identified by Stantec within the Project area. Representative photographs of the wetlands identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Completed wetland determination and ORAM

data forms are included in Appendix D. Information regarding the Cowardin classification and ORAM categories of wetlands identified within the Project area is provided in Table 2.

Table 2. Summary of Wetland Resources Found within the Seaman-Adams 138 kV Transmission Line Rebuild Project Area, Adams County, Ohio

Wetland Name	Figure 2 Photo Location[1]	Isolated?	Wetland Classification[2]	ORAM Score[4]	ORAM Category[4]	Delineated Area (acres) within Project Area
Wetland 1	19	Yes	PEM[3]	28	1	0.04
					TOTAL	**0.04**

[1] Figure 2 and Appendix C – Representative Photographs

[2] Wetland classification is based on Cowardin et al. (1979).

[3] PEM = Palustrine Emergent Wetland

[4] ORAM Score and Category are based on the Ohio Rapid Assessment Method for Wetlands v. 5.0 (Mack 2001).

3.3 STREAMS

Stantec completed field surveys for waterbodies (streams) within the Project area on December 7-13, 2016, March 28-29, 2017, September 6, 2017, and August 3, 2020. Figure 2 (Appendix A) shows the streams and upland drainage features identified by Stantec within the Project area. Representative photographs of the streams and upland drainage features identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Completed QHEI and HHEI data forms for streams identified in the Project area are included in Appendix D. Information regarding the streams identified within the Project area is provided in Table 3.

Table 3. Summary of Stream Resources Found within the Seaman-Adams 138 kV Transmission Line Rebuild Project Area, Adams County, Ohio

Stream Name	Photo Location[1]	Receiving Waters	Stream Flow Regime[2]	Stream Evaluation Method	Stream Evaluation Score	Approximate OHWM Width (feet)[3]	Delineated Length (feet) within Project Area
Stream 1	2	Ohio Brush Creek	Ephemeral	HHEI	42	1	142
	27	Ohio Brush Creek	Intermittent	HHEI	62	6	77
Stream 2	3	Ohio Brush Creek	Ephemeral	HHEI	30	1	31
Stream 3 (West Fork Ohio Brush Creek)	5	Ohio Brush Creek	Intermittent	QHEI	51	20	137
Stream 4 (West Fork Ohio Brush Creek)	6	Ohio Brush Creek	Ephemeral	QHEI	51	90	115
Stream 5 (West Fork Ohio Brush Creek)	7	Ohio River	Perennial	QHEI	64	85	118
Stream 6 (George's Creek)	9	Ohio Brush Creek	Perennial	QHEI	83	95	142
Stream 7	10	Ohio Brush Creek	Intermittent	HHEI	83	8	103
Stream 8	11	Ohio Brush Creek	Intermittent	HHEI	88	5	157
Stream 9	14	Ohio Brush Creek	Perennial	HHEI	59	3.5	130
Stream 10 (Big Run)	13	Ohio Brush Creek	Perennial	HHEI	83	38	104
Stream 11	12	Ohio Brush Creek	Ephemeral	HHEI	57	6	106
Stream 12	15	Ohio Brush Creek	Perennial	HHEI	81	30	105
Stream 13	16	West Fork Ohio Brush Creek	Intermittent	HHEI	46	7	103
Stream 14	17	West Fork Ohio Brush Creek	Ephemeral	HHEI	53	5	128
Stream 15	18	West Fork Ohio Brush Creek	Perennial	HHEI	64	3	118

Stream Name	Photo Location[1]	Receiving Waters	Stream Flow Regime[2]	Stream Evaluation Method	Stream Evaluation Score	Approximate OHWM Width (feet)[3]	Delineated Length (feet) within Project Area
Stream 16	20	West Fork Ohio Brush Creek	Ephemeral	HHEI	21	1.5	44
Stream 17	21	West Fork Ohio Brush Creek	Perennial	HHEI	80	10	143
Stream 18	22	West Fork Ohio Brush Creek	Ephemeral	HHEI	15	4	46
Stream 19 (Ohio Brush Creek)	23	Ohio Brush Creek	Perennial	QHEI	60	88	138
Stream 20	24	Ohio Brush Creek	Ephemeral	HHEI	19	2	229
						TOTAL	**2,416**

[1] Figure 2 and Appendix C – Representative Photographs

[2] Stream classification is based on Federal Register/Vol. 67, No. 10 (USACE 2002)

[3] OHWM = Ordinary High Water Mark

3.4 OPEN WATERS

Two open waters (ponds) were delineated within the Project area during the field surveys completed on December 7-13, 2016, March 28-29, 2017, September 6, 2017, and August 3, 2020. Representative photographs of the open waters identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A).

3.5 RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

Table 4. Summary of Potential Ohio State-Listed Species within the Seaman-Adams 138 kV Transmission Line Rebuild Project Area, Adams County, Ohio

Common Name	Scientific Name	State[1] Listing	Known to Occur Within Adams County?[2]	Known to Occur Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Insects								
Uhler's Sundragon	*Helocordula uhleri*	E	Yes	No	This species needs clean, small to medium, rocky forest streams with gravelly and/or sandy substrate and flowing water. They can be found in sunny clearings and forest edges near their streams (Munroe 2012).	Yes	Some potentially suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area and no in-stream work is proposed by AEP. Therefore, impacts to this species are possible but not anticipated,	No comments received.
Ohio Cave Beetle	*Pseudanophthalmus ohioensis*	E	No	No	Occur in twilight zone of caves (or deeper) on moist soil; often near streams or drip areas (NatureServe 2020).	No	No caves or suitable habitat were observed within the Project area. Therefore, no impacts to this species are anticipated.	This species is only found in caves. The Ohio Cave Protection Law, Section 1517.21 of the Ohio Revised Code, protects caves from impacts, in turn, protecting the habitat of these species. Therefore, this project is not likely to have an impact on this species.
Kramer's Cave Beetle	*Pseudanophthalmus krameri*	Ex	No	No	This species typically occurs in the twilight zone or deeper in or on moist soil, often near streams or drip areas. They (especially larvae) probably do burrow some. They are often found under rocks or debris (NatureServe 2020).	No	No caves or suitable habitat were observed within the Project area and ODNR now lists this species as extinct. Therefore, no impacts to this species are anticipated.	This species is only found in caves. The Ohio Cave Protection Law, Section 1517.21 of the Ohio Revised Code, protects caves from impacts, in turn, protecting the habitat of these species. Therefore, this project is not likely to have an impact on this species.
Caddisfly	*Oecetis eddlestoni*	E	Yes	No	No habitat information is available on this species. However, caddisflies typically inhabit perennial streams, lakes, and ponds.	Yes	While habitat information is not readily available for this species, potential habitat is assumed present in the Project area (perennial streams and ponds). No in-water work in perennial streams or ponds is proposed by AEP. Therefore, no impacts are anticipated.	No comments received.
Unexpected Cycnia	*Cycnia inopinatus*	E	Yes	No	Habitat for this species has been described as high quality, coastal scrub, dry barrens and similar native grasslands, typically on sand (NatureServe 2020).	No	No suitable habitat was observed within the Project area. Therefore, no impacts to this species are anticipated.	No comments received.
Blue Corporal	*Ladona deplanata*	E	Yes	No	This species has a wide range of habitats, from ponds and lakes to slower sections of creeks, and even ditches (Paulson 2011).	Yes	Some potentially suitable habitat was observed within the Project area. However, this	No comments received

Common Name	Scientific Name	State[1] Listing	Known to Occur Within Adams County?[2]	Known to Occur Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
							species is not known to occur within a one-mile radius of the Project area and no-in water work is proposed by AEP. Therefore, impacts to this species are possible but not anticipated,	
Green-faced Clubtail	*Gomphus viridifrons*	T	Y	No	Found in small to large moderate-gradient rivers; free flowing with high water quality; larvae burrow in silt, adults forage in trees (NatureServe 2020).	Yes	Some potentially suitable habitat (perennial streams - West Fork Ohio Brush Creek, Ohio Brush Creek, George's Creek, and Big Run) was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area and no in water work within perennial streams is proposed by AEP. Therefore, impacts to this species are possible but not anticipated.	No comments received.
Birds								
Loggerhead Shrike	*Lanius ludovicianus*	E	Yes	No	Breeding habitats for the loggerhead shrike are open country with scattered trees and shrubs, savanna, desert scrub and, occasionally, open woodland (NatureServe 2020).	Yes	Potentially suitable habitat for this species was observed within portions of the Project area (pastures, old fields, openings in early successional forest). However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts to this species are possible but are not anticipated.	No comments received.
Lark Sparrow	*Chondestes grammacus*	E	No	No	Breeding habitat includes various open situations with scattered bushes and trees: shortgrass, mixed-grass, and tallgrass prairie with a shrub component and sparse litter; parkland; sandhills; barrens; old fields; cultivated fields; shrub thickets; shrubsteppe (native and altered); woodland edges; shelterbelts; orchards, parks; riparian areas; brushy pastures; overgrazed pastures; and savanna. The lark sparrow nests on the ground or close to the ground (most often within 4 meters) in woody vegetation. Ground nests may be located in areas of sparse ground cover such as those areas associated with burning, moderate to heavy grazing, or poor or eroded soils, or in idle fields, lawns, and cemeteries (NatureServe 2020).	Yes	Potentially suitable habitat for this species (old field, pasture, hay field) was observed within portions of the Project area. However, this species is not known to occur within the Project area or a one-mile radius of it. Therefore, impacts to this species are possible but not anticipated.	If habitat for this species will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to June 30. If this habitat will not be impacted, the project is not likely to impact this species.

Common Name	Scientific Name	State[1] Listing	Known to Occur Within Adams County?[2]	Known to Occur Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Barn Owl	*Tyto alba*	T	Yes	No	Barn owls require extensive tracts of grasslands, marshes, and meadows to forage. This is a primary reason for their decline; agricultural practices have become much "neater" and there are not nearly as many fallow fields and untilled land as there was when they were at their peak. It is likely that good grasslands must be older and established to provide maximum benefit, as they must support viable populations of voles and mice, the major prey of barn owls. There must also be suitable nest sites nearby, and this is another limiting factor. Most barn owl nests are located in barns, usually high in a loft or some niche well off the floor. A variety of other man-made structures might be used, such as under bridges, in abandoned wells, old houses, and church steeples. Very rarely, at least now, barn owls will use cavities in trees (ODNR 2006).	Yes	Potential foraging habitat was observed (pasture, old field, hay field). However, no suitable nesting structures were observed within the Project area. Therefore, impacts to this species are possible, but not anticipated.	No comments received.
Fishes								
Shortnose Gar	*Lepisosteus platostomus*	E	Yes	No	Shortnose Gar prefer open, slow silty or clear-water rivers, wave-washed shoals of large lakes, quiet creek pools and river backwaters. Usually at water surface, often near vegetation and submerged logs (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
Popeye Shiner	*Notropis ariommus*	E	Yes	No	Habitat includes warm, relatively clear flowing waters of large creeks and small to medium rivers; these shiners are closely associated with gravel substrate; typically, they occur in runs, backwaters near appreciable current, and the head of pools (NatureServe 2020).	Yes	Some potentially suitable habitat (perennial streams) was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
American Eel	*Anguilla rostrata*	T	Yes	No	The American eel may be found at times in any stream in Ohio, and in Lake Erie. They occur most often in moderate or large rivers with continuous flow and moderately clear water. While in fresh water, eels are secretive and hide in deep pools around cover, sometimes burying themselves during the day and coming out to feed at night (ODNR 2017a).	Yes	Some potentially suitable habitat (perennial streams) was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
Channel Darter	*Persina copelandi*	T	Yes	No	Habitat includes warm, low, and moderate gradient rivers and large creeks in areas of moderate current. This darter usually is found over sand and gravel substrates; it prefers clear water and silt-free bottoms (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.

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River Darter	*Percina shumardi*	T	Yes	No	Large rivers and lower part of tributaries; deep chutes and riffles where current is swift and bottom is coarse gravel or rock (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
Bigeye Shiner	*Notropis boops*	T	No	No	Flowing pools of moderately clear creeks and small to medium rivers with large permanent pools over bottom of clear sand, gravel, or rock. Often at stream margin in beds of emergent vegetation (NatureServe 2020).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
Goldeye	*Hiodon alosoides*	E	Yes	No	Habitat includes quiet turbid water of medium to large lowland rivers, the small lakes, ponds, and marshes connected to them, and muddy shallows of larger lakes. This fish prefers moderate to fast current in Illinois and Ohio. Spawning occurs in shallow firm-bottomed sites in river pools or backwaters or over gravel shoals in tributary streams (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
Paddlefish	*Polyodon spathula*	T	Yes	No	Paddlefish are found in the Ohio River and up to the first dam on its larger tributaries. They prefer the sluggish pools and backwater areas of these rivers and streams. Historically they were much more common and could be found as far up the Ohio River as Pennsylvania. It is also probable that there was a small population in Lake Erie at one time. Today paddlefish are most often seen in the Ohio River from Portsmouth downstream to the Indiana state line (ODNR 2017a).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	No comments received.
Shovelnose Sturgeon	*Scaphirhynchus platorynchus*	E	No	No	Habitat includes deep channels and embayments of large turbid rivers; often over sand mixed with gravel or mud in areas with strong current (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
Blue Sucker	*Cycleptus elongatus*	T	No	No	Habitat includes the largest rivers and lower parts of major tributaries. Usually this sucker occurs in channels and flowing pools with moderate current (1.0-2.6 meters/sec). It also occurs in some impoundments. Adults probably winter in deep pools. Young occupy shallower and less swift water than do adults (NatureServe 2020).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.

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Tippecanoe Darter	*Etheostoma tippecanoe*	T	No	No	Habitat includes shallow gravel riffles of small to medium-sized rivers with moderate gradient and warm, usually clear water; adults occupy shallow and deep, moderate and swift runs and long shallow gravel/sand riffles. Spawning occurs at heads or tails of clean-swept gravel and pebble riffles in water 8-46 centimeters deep with gentle current (NatureServe 2020).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	ODNR recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species or other aquatic species.
Reptiles								
Timber Rattlesnake	*Crotalus horridus*	E	Yes	No	Remnant colonies persist in widely scattered areas in southern unglaciated Ohio. They prefer dry, wooded hill country where they prey on a variety of small warm-blooded animals (ODNR 2018).	No	A timber rattlesnake habitat assessment was completed by an ODNR-approved herpetologist and it was determined that no areas of this suitable habitat for this species was present within the Project area. Additionally, no occurrences of this species are known from the Project area or a one-mile radius of it. Therefore, impacts to this species may occur but are not anticipated.	ODNR recommends that a survey be conducted to determine if suitable habitat exists at the project site. If suitable habitat is present, the ODNR recommends that a presence/absence survey be conducted or an avoidance/minimize plan be developed and implemented by an approved herpetologist to ensure any timber rattlesnakes that are utilizing the area are not impacted by the project.
Isopods								
Fern Cave Isopod	*Caecidotea filicispeluncae*	E	Yes	No	Found in subterranean rimstone pools (NatureServe 2020).	No	No caves or suitable habitat were observed within the Project area. Therefore, no impacts to this species is anticipated.	No comments received.
Frost Cave Isopod	*Caecidotea rotunda*	T	Yes	No	Inhabits cave streams where the isopods can be found on the undersides of rocks (NatureServe 2020).	No	No caves or suitable habitat were observed within the Project area. Therefore, no impacts to this species is anticipated.	No comments received.
Mussels								
Fanshell	*Cyprogenia stegaria*	E	Yes	No	Found in medium to large streams and river habitats with gravel substrates and a strong current, in both deep and shallow water (NatureServe 2020).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.

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Butterfly	*Ellipsaria lineolata*	E	Yes	No	This species reaches its greatest abundance in large rivers in stretches with pronounced current and a substrate of coarse sand and gravel (NatureServe 2020). It appears to have been successful in adapting to impoundment conditions in the Cumberland and Tennessee Rivers where it is locally common and can be found at depths of up to 20 feet (Parmalee and Bogan, 1998).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Snuffbox	*Epioblasma triquetra*	E	Yes	No	Occurs in medium-sized streams to large rivers, generally on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2020). Snuffbox is commonly found buried in the substrate. It is found in a wide range of particle sized substrates; however, swift shallow riffles with sand and gravel are where it is typically found (Parmalee and Bogan 1998; Watters et al. 2009).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Ebonyshell	*Fusconaia ebena*	E	Yes	No	This species inhabits large rivers and prefers swift water and stable sandy or gravely shoals. Parmalee and Bogan (1998) list this species as occurring in current at depths of 10 to 15 feet or more. A coarse sand and gravel substrate provides the most suitable habitat, although this species thrives in rivers composed of sand, silt, and mud (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Longsolid	*Fusconaia maculata maculata*	E	Yes	No	This species is found in medium to large rivers in gravel with a strong current often in sand and gravel (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Pink Mucket	*Lampsilis abrupta*	E	Yes	No	Characterized as a large river species associated with fast-flowing waters, although in recent years it has been able to survive and reproduce in impoundments with river-lake conditions but never in standing pools of water. Found in waters with strong currents, rocky or boulder substrates, with depths up to about 1 m, but is also found in deeper waters	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR

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					with slower currents and sand and gravel substrates (NatureServe 2020).			and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Yellow Sandshell	*Lampsilis teres*	E	Yes	No	This species prefers sand in either swift or slowly moving water. It also can be found In muddy sand and sand in slight to moderate current and in a few lakes and reservoirs. Occurs in medium-sized creeks to large rivers, often in slower current areas of stream borders. In the ACF basin, over 50% of individuals recently collected were listed as having sand as primary substrate, followed by mud (29%), rock (13%), and silt (4%) (NatureServe 2020).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Washboard	*Megalonaias nervosa*	E	Yes	No	This species is typically a large river species, living in the main channel and in some of the overbank areas of reservoirs, but in some instances, it may also become established in medium-sized and even small rivers. It is found in areas with a slow current with muddy to coarse gravel substrates (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Sheepnose	*Plethobasus cyphyus*	E	Yes	No	Although it does inhabit medium-sized rivers, this mussel generally has been considered a large-river species. It may be associated with riffles and gravel/cobble substrates but usually has been reported from deep water (>2 m) with slight to swift currents and mud, sand, or gravel bottoms. It also appears capable of surviving in reservoirs, such as upper Chickamauga Reservoir immediately below Watts Bar Dam. Specimens in larger rivers may occur in deep runs (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.

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Clubshell	*Pleurobema clava*	E	Yes	No	The clubshell occurs in medium to small rivers and streams, containing clean, coarse sand and cobble substrates (USFWS 1994). The clubshell is usually found within the current, where it may live several inches underneath the surface. It is most common in the downstream ends of riffles and islands (Watters et al. 2009). The clubshell is mostly considered an Ohio River system species, including the Tennessee, Cumberland, Kanawha, and Wabash river drainages. However, it is also found within the Maumee River system of Lake Erie. Although historically the clubshell was originally described as occurring within Lake Erie, only one record of its occurrence there has been found (Watters et al. 2009).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Ohio Pigtoe	*Pleurobema cordatum*	E	Yes	No	This species primarily inhabits large rivers but may be found in medium-sized rivers. It is also tolerant of some reservoir environments. In lotic situations it is found in or immediately above riffles in heterogenous assemblages of gravel, cobble, and boulder. It also occurs in some habitats with greater depth and substrates of mud/sand/gravel but seems to require flowing water. In reservoirs, it tends to occur in the sublotic areas of dam tailwaters and may be in some overbank beds (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Rabbitsfoot	*Quadrula cylindrica cylindrica*	E	Yes	No	According to Gordon and Layzer (1989) the typical habitat for this species is small to medium rivers with moderate to swift currents, and in smaller streams it inhabits bars or gravel and cobble close to the fast current. Found in medium to large rivers in sand and gravel. It has been found in depths up to 3 meters (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Monkeyface	*Quadrula metanevra*	E	Yes	No	This is a species of medium to large rivers typically found in runs with a substrate or mixed sand or gravel (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.

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Wartyback	*Quadrula nodulata*	E	Yes	No	This species can occur in medium to large rivers at depths of up to 15-18 feet on a sand and mud substrate (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Rayed Bean	*Villosa fabalis*	E	Yes	No	Habitat includes gravel or sandy substrate, especially in areas of thick roots of aquatic plants, increase substrate stability (NatureServe 2020, Parmalee and Bogan 1998). Rayed bean can be associated with shoal or riffle areas, and in shallow, wave-washed areas of glacial lakes. It is generally found in smaller, headwater creeks, but sometimes in larger rivers and open-water bodies. It can occur in shallow riffles or in lakes with water depths up to four feet. It has been found in riffles, generally in vegetation, and deeply buried in sand and gravel bound together by roots (Parmalee and Bogan 1998).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Black Sandshell	*Ligumia recta*	T	Yes	No	Typically found in medium-sized to large rivers in locations with strong current and substrates of coarse sand and gravel with cobbles in water depths from several inches to six feet or more (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Threehorn Wartyback	*Obliquaria reflexa*	T	Yes	No	This species is typical of the large rivers where there is moderately strong current, and a stable substrate composed of gravel, sand, and mud (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Fawnsfoot	*Truncilla donaciformis*	T	Yes	No	This species occurs in both large and medium-sized rivers at normal depths varying from less than three feet up to 15 to 18 feet in big rivers such as the Tennessee. A substrate of either sand or mud is suitable and although it is typically found in	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio

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					moderate current, it can adapt to a lake or embayment environment lacking current (NatureServe 2020).		by AEP. Therefore, no impacts are anticipated.	Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Northern Riffleshell	*Epioblasma torulosa rangiana*	E	No	No	This species is found in riffles, on a bottom of firmly packed and rather fine gravel, in swiftly flowing, shallow water or coarse gravel. Preferred habitat appears to require swiftly moving water. The high oxygen concentrations in swift streams may be necessary for survival. It is a species of riffle areas of smaller streams, and as such has fared better than larger river species, which have been heavily impacted by dredging and impoundment (NatureServe 2020).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	This project must not impact mussels (listed and non-listed) at the project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur.
Mammals								
Indiana Bat	*Myotis sodalis*	E	Yes	No	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007a; USFWS 2020). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).	Yes	No suitable winter hibernacula were observed in the Project area. However, suitable summer foraging habitat and potentially suitable summer roost habitat was observed in the Project area. AEP intends to avoid areas with summer roost habitat to the extent possible and conduct necessary tree clearing between October 1 and March 31. AEP will determine if any summer tree clearing is necessary in areas containing suitable roost habitat and will proceed accordingly.	If suitable habitat occurs within the project area, ODNR recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, ODNR recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, ODNR recommends a net survey be conducted between June 1 and August 15, prior to any cutting.
Northern Long-eared Bat	*Myotis septentrionalis*	E	Yes	No	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2016). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	Yes	No suitable winter hibernacula were observed in the Project area. However, suitable summer foraging habitat and potentially suitable summer roost habitat was observed in the Project area. AEP intends to avoid areas with summer roost habitat to the extent possible and conduct necessary tree clearing between October 1 and March 31. AEP will determine if any summer tree clearing is necessary in areas containing	No comments received.

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							suitable roost habitat and will proceed accordingly.	
Little Brown Bat	*Myotis lucifugus*	E	Yes	No	The little brown bat is found throughout Ohio. This species seems to prefer to forage over water but also forages among trees in rather open areas (Harvey et al. 1999). During summer, it typically inhabits buildings, attics, church belfries, barns and outbuildings, and occasionally more natural habitats such as sloughing bark of a dead tree. During summer, two types of roosts are utilized: day roosts and night roosts. Day roosts are the maternity colony roost, while little brown bats often roost in other areas where they rest and congregate to digest their food in between foraging bouts. In Ohio, this species typically utilizes caves and mines as hibernacula, although at least one hibernaculum was found to be located in an attic of an old building (Brack et al. 2010).	Yes	No suitable winter hibernacula were observed in the Project area. However, suitable summer foraging habitat and potentially suitable summer roost habitat was observed in the Project area. AEP intends to avoid areas with summer roost habitat to the extent possible and conduct necessary tree clearing between October 1 and March 31. AEP will determine if any summer tree clearing is necessary in areas containing suitable roost habitat and will proceed accordingly.	No comments received.
Tri-colored Bat	*Perimyotis subflavus*	E	No	No	The tricolored bat is found throughout Ohio. This species has been found to forage above and within a variety of habitats, including woodlands, agricultural fields, grassy areas, and over streamside vegetation (Sparks et al. 2011). Maternity colonies have often been found within clusters of dead leaves, hanging in trees. Maternity colonies have also been found in or on buildings. Little is known of male tri-colored bats in summer, but it is thought that they are probably solitary and spend their days in similar situations, as well as crevices, caves and mines (Brack et a.l 2010). In Ohio, this species typically utilizes caves and mines as hibernacula, utilizing a variety of situations, including very cold areas near cave entrances to deeper passages that seem to be too warm for other species of bats (Brack et al. 2010).	Yes	No suitable winter hibernacula were observed in the Project area. However, suitable summer foraging habitat and potentially suitable summer roost habitat was observed in the Project area. AEP intends to avoid areas with summer roost habitat to the extent possible and conduct necessary tree clearing between October 1 and March 31. AEP will determine if any summer tree clearing is necessary in areas containing suitable roost habitat and will proceed accordingly.	No comments received.
Allegheny Woodrat	*Neotoma magister*	E	Yes	No	Allegheny woodrats can be found in rocky outcrops, such as cliffs and caves, and in forested areas. Builds a large, cup-shaped nest under rocks or ledges (ODNR 2016).	No	No suitable habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Black Bear	*Ursus americanus*	E	Yes	No	Heavily wooded habitats, ranging from swamps and wetlands to dry upland hardwood and coniferous forests; prefers wooded cover with a dense understory (ODNR 2016).	Yes	Suitable habitat was observed within the Project area, but due to the mobility of this species, impacts are not anticipated.	Due to the mobility of this species, this project is not likely to impact this species.

Common Name	Scientific Name	State[1] Listing	Known to Occur Within Adams County?[2]	Known to Occur Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Amphibians								
Green Salamander	*Aneides aeneus*	E	Yes	No	This species is limited in Ohio to a very few rock ledges in Adams, Lawrence, and Scioto counties. It prefers the deep moist cracks in otherwise mostly dry limestone and sandstone cliffs (ODNR 2012).	No	No suitable habitat for this species was observed within the Project area. Therefore, impacts to this species are not anticipated.	No comments received.
Cave Salamander	*Eurycea lucifuga*	E	Yes	No	this species prefers the dimly lighted zone near the entrance of wet limestone caves. However, it may also be encountered in wooded areas or along streams with a connection to groundwater, far removed from any known caves (ODNR 2012).	No	No suitable habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Midland Mud Salamander	*Pseudotriton montanus diastictus*	T	Yes	No	Midland mud salamanders are most often encountered under large, flat stones along shallow, sluggish woodland streams, springs, and seeps. As implied by their name, they indeed seem to prefer muddy areas. In Ohio, this species is somewhat uncommon and is limited to a few counties in the extreme southern part of the state (ODNR 2012).	No	No suitable habitat was observed within the Project area and no in-water work is proposed by AEP. Therefore, no impacts to this species are anticipated.	No comments received.
Eastern Spadefoot	*Scaphiopus holbrookii*	E	Yes	No	Eastern spadefoots occur in areas of sandy, gravelly, or soft, light soils in wooded or unwooded terrain. On land, they range up to at least several hundred meters from breeding sites. When inactive, they remain burrowed in the ground. Breeding sites include temporary pools and areas flooded by heavy rains (NatureServe 2020).	No	A habitat assessment for this species was completed by an ODNR-approved herpetologist and no suitable habitat was identified within the Project area. Therefore, no impacts are anticipated.	If suitable habitat is found to be present, the DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the Project route. If suitable habitat is found to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by an approved herpetologist.
Plants								
Scaly Blazing-star	*Liatris squarrosa*	P	Yes	No	Found in dry prairie sites with poor soil or sand on oak ridges, also found on Great Lakes Dunes (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.
Wall-rue	*Asplenium ruta-muraria*	T	Yes	No	Wall-rue is found on dry to moist calcareous rock exposures. It is rarely found in full sun (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.

Common Name	Scientific Name	State[1] Listing	Known to Occur Within Adams County?[2]	Known to Occur Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Walter's Violet	*Viola walteri*	T	Yes	No	Walter's violet is found in open woods and on rocky ledges, usually in calcareous substrates; frequently collected on dolomite outcrops and promontories (ODNR 2017b).	No	No suitable habitat was observed within the Project area. Therefore, no impacts are anticipated.	No comments received.
Arbor Vitae	*Thuja occidentalis*	P	Yes	No	Arbor vitae occurs in open to semi-open habitats on calcareous substrates; cliffs, limestone ledges, uplands, and fens (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.
Wedge-leaved Whitlow-grass	*Draba cuneifolia*	T	Yes	No	Occurs in dry, open situations, usually in sandy areas or calcareous cliff tops and prairies (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.
Carolina Whitlow-grass	*Draba reptans*	T	Yes	No	Occurs in dry, open situations, usually in sandy soil: ledges, fields, pastures, dunes, waste places, and roadsides (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.
Early Buttercup	*Ranunculus fascicularis*	T	Yes	No	Occurs in calcareous soils of prairies, pastures, and dry, open woods; also on calcareous rock outcrops (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.
Narrow-leaved Toothwort	*Cardamine dissecta*	P	Yes	No	Rich to disturbed woods and wooded stream terraces (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.
Wherry's Catchfly	*Silene caroliniana* ssp. *wherryi*	T	Yes	No	Occurs in rocky upland woods of calcareous region; also tolerant of slightly acidic soil conditions (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.

Common Name	Scientific Name	State[1] Listing	Known to Occur Within Adams County?[2]	Known to Occur Within One Mile of Project Area?[3]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Tennessee Pondweed	*Potamogeton tennesseensis*	T	Yes	No	Still or flowing water (ODNR 2017b).	Yes	Some suitable habitat was observed within the Project area. However, this species is not known to occur within a one-mile radius of the Project area. Therefore, impacts may occur but are not anticipated.	No comments received.

[1]E=Endangered; T=Threatened; SOC=Species of Concern; P=Potentially Threatened; Ex=Extinct
[2]According to Ohio Department of Natural Resources, State Listed Wildlife Species by County (ODNR 2020).
[3]According to Ohio Natural Heritage Program (Appendix B).

Table 5. Summary of Potential Federally Listed Species within the Seaman-Adams 138 kV Transmission Line Rebuild Project Area, Adams County, Ohio

Common Name	Scientific Name	Federal Listing[1]	Known to Adams County?[2]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	USFWS Comments/ Recommendations
Mammals							
Indiana Bat	*Myotis sodalis*	E	Yes	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007a; USFWS 2020). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).	Yes	No suitable winter hibernacula were observed in the Project area. However, suitable summer foraging habitat and potentially suitable summer roost habitat was observed in the Project area. AEP intends to avoid areas with summer roost habitat to the extent possible and conduct necessary tree clearing between October 1 and March 31. AEP will determine if any summer tree clearing is necessary in areas containing suitable roost habitat and will proceed accordingly.	The USFWS response letter (Appendix B) indicated that, due to the project type, size, and location, if caves and mines (potential bat hibernacula) will not be disturbed and seasonal tree cutting (clearing of trees ≥3 inches' diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats is implemented, they do not anticipate adverse effects to this species.
Northern Long-eared Bat	*Myotis septentrionalis*	T	Yes	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2016). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	Yes	No suitable winter hibernacula were observed in the Project area. However, suitable summer foraging habitat and potentially suitable summer roost habitat was observed in the Project area. AEP intends to avoid areas with summer roost habitat to the extent possible and conduct necessary tree clearing between October 1 and March 31. AEP will determine if any summer tree clearing is necessary in areas containing suitable roost habitat and will proceed accordingly.	If no caves or abandoned mines may be disturbed and tree removal is unavoidable, seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) is recommended. Following this seasonal tree clearing recommendation should ensure that no adverse effects to the northern long-eared bat will occur. Incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule.
Mussels							
Clubshell	*Pleurobema clava*	E	Yes	The clubshell occurs in medium to small rivers and streams, containing clean, coarse sand and cobble substrates (USFWS 1994). The clubshell is usually found within the current, where it may live several inches underneath the surface. It is most common in the downstream ends of riffles and islands (Watters et al. 2009). The clubshell is mostly considered an Ohio River system species, including the Tennessee, Cumberland, Kanawha, and Wabash river drainages. However, it is also found within the Maumee River system of Lake Erie. Although historically the clubshell was originally described as occurring within Lake Erie, only one record of its occurrence there has been found (Watters et al. 2009).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	Due to the project type, size, and location, USFWS does not anticipate adverse effects to any other federally listed species.
Fanshell	*Cyprogenia stegaria*	E	Yes	Found in medium to large streams and river habitats with gravel substrates and a strong current, in both deep and shallow water (NatureServe 2020).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	Due to the project type, size, and location, USFWS does not anticipate adverse effects to any other federally listed species.

Common Name	Scientific Name	Federal Listing[1]	Known to Adams County?[2]	Habitat Preference	Potential Habitat Observed in Project Area?	Impact Assessment	USFWS Comments/ Recommendations
Pink Mucket	*Lampsilis abrupta*	E	Yes	Characterized as a large river species associated with fast-flowing waters, although in recent years it has been able to survive and reproduce in impoundments with river-lake conditions but never in standing pools of water. Found in waters with strong currents, rocky or boulder substrates, with depths up to about 1 m, but is also found in deeper waters with slower currents and sand and gravel substrates (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	Due to the project type, size, and location, USFWS does not anticipate adverse effects to any other federally listed species.
Rayed Bean	*Villosa fabalis*	E	Yes	Habitat includes gravel or sandy substrate, especially in areas of thick roots of aquatic plants, increase substrate stability (NatureServe 2020, Parmalee and Bogan 1998). Rayed bean can be associated with shoal or riffle areas, and in shallow, wave-washed areas of glacial lakes. It is generally found in smaller, headwater creeks, but sometimes in larger rivers and open-water bodies. It can occur in shallow riffles or in lakes with water depths up to four feet. It has been found in riffles, generally in vegetation, and deeply buried in sand and gravel bound together by roots (Parmalee and Bogan 1998).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	Due to the project type, size, and location, USFWS does not anticipate adverse effects to any other federally listed species.
Sheepnose	*Plethobasus cyphyus*	E	Yes	Although it does inhabit medium-sized rivers, this mussel generally has been considered a large-river species. It may be associated with riffles and gravel/cobble substrates but usually has been reported from deep water (>2 m) with slight to swift currents and mud, sand, or gravel bottoms. It also appears capable of surviving in reservoirs, such as upper Chickamauga Reservoir immediately below Watts Bar Dam. Specimens in larger rivers may occur in deep runs (NatureServe 2020).	No	No suitable habitat was observed within the Project area and no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	Due to the project type, size, and location, USFWS does not anticipate adverse effects to any other federally listed species.
Snuffbox	*Epioblasma triquetra*	E	Yes	Occurs in medium-sized streams to large rivers, generally on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2020). Snuffbox is commonly found buried in the substrate. It is found in a wide range of particle sized substrates; however, swift shallow riffles with sand and gravel are where it is typically found (Parmalee and Bogan 1998; Watters et al. 2009).	Yes	Some potentially suitable habitat was observed within the Project area. However, no in-water work in perennial streams is proposed by AEP. Therefore, no impacts are anticipated.	Due to the project type, size, and location, USFWS does not anticipate adverse effects to any other federally listed species.
Plants							
Running Buffalo Clover	*Trifolium stoloniferum*	E	Yes	Running buffalo clover's habitat most commonly is mesic woodlands in partial to filtered sunlight, where there is a pattern of moderate periodic disturbance for a prolonged period, such as mowing, trampling, or grazing. It utilizes a variety of disturbed woodland habitats, floodplains, streambanks, grazed woodlots, cemeteries, lawns, old logging roads, and jeep trails (USFWS 2007b).	Yes	Potentially suitable habitat for this species was observed within portions of the Project area. However, surveys for running buffalo clover were completed by Stantec's USFWS-approved running buffalo clover surveyors in May of 2018 and no running buffalo clover individuals or populations were observed. Therefore, no adverse effects to this species are anticipated.	If suitable habitat is present, USFWS recommends surveys for this species be conducted by a trained biologist in May or June when the plant is in flower. The survey must be coordinated with USFWS in advance.

[1]E=Endangered; T=Threatened
[2]According to USFWS (2018).

4.0 Conclusions and Recommendations

Stantec conducted wetland and waterbody delineation field surveys and a preliminary habitat assessment for threatened and endangered species within the Project area on December 7-13, 2016, March 28-29, 2017, September 6, 2017, and August 3, 2020. During the field surveys, one palustrine emergent wetland totaling approximately 0.04 acres was identified within the Project area. See Table 2 for more information regarding the wetland classifications and ORAM categories for wetlands identified within the Project area. Eight ephemeral streams totaling approximately 841 linear feet in length, five intermittent streams totaling approximately 577 linear feet in length, and eight perennial streams totaling approximately 998 linear feet in length were delineated within the Project area. Perennial streams included West Fork Ohio Brush Creek, George's Creek, Big Run, and Ohio Brush Creek. See Table 3 for more information regarding the streams identified within the Project area.

The information provided by Stantec regarding wetland and stream boundaries is based on an analysis of the wetland and upland conditions present within the Project area at the time of the fieldwork. The delineations were performed by experienced and qualified professionals using regulatory agency-accepted practices and sound professional judgment.

Table 4 provides summary information for all state-listed species known to occur within Adams County. A technical assistance/environmental review request letter was sent to ODNR Office of Real Estate. The ODNR Office of Real Estate response letter (Appendix B) indicates that the Project area is located within range of the following state-listed endangered and/or threatened species: Indiana bat, black bear, lark sparrow, Ohio cave beetle, Kramer's cave beetle (now listed as extinct; ODNR 2020), shortnose gar, popeye shiner, channel darter, American eel, river darter, as well as 16 mussel species. Impacts to these species are not anticipated by the Project.

If suitable Indiana bat roost habitat occurs within the Project area, ODNR recommends trees be conserved. If suitable habitat occurs in the Project area and trees must be cut, ODNR recommends cutting occur between October 1 and March 31. If suitable trees must be cut during summer months, ODNR recommends a net survey be conducted between June 1 and August 15, prior to any cutting. If no tree removal is proposed, this project is not likely to impact this species. No suitable winter hibernacula were observed in the Project area. However, suitable summer roost habitat was observed in the Project area. AEP intends to avoid areas with summer roost habitat to the extent possible. AEP will determine if any summer tree clearing is necessary in areas containing suitable roost habitat and will proceed accordingly.

According to ODNR, this project must not impact mussels (listed and non-listed) at the Project site. If in-water work is planned in any stream that meets the criteria described in the Ohio Mussel Survey Protocol (ODNR and USFWS 2020), ODNR recommends information be provided that indicates no mussels are present or no mussel impacts will occur. ODNR also recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to aquatic species and their habitat. If no in-water work is proposed, the project is not likely to impact listed mussel and fish species.

Suitable habitat for several mussel and fish species does occur in the Project area. However, no in-water work is proposed by AEP in perennial streams. Therefore, no impacts are anticipated to state-listed mussel and fish species.

ODNR recommended that habitat surveys for timber rattlesnake and eastern spadefoot toad be performed by ODNR-approved herpetologists. If suitable habitat is found to be present, then ODNR recommended a presence/absence survey be conducted or an avoidance/minimization plan be developed and implemented. An eastern spadefoot toad habitat assessment study was conducted by ODNR-approved herpetologist Jeffrey Davis in 2017. The habitat assessment study concluded that there is no suitable habitat for the eastern spadefoot toad within the Project area. Additionally, a timber rattlesnake habitat assessment study was conducted by ODNR-approved herpetologist Doug Wynn in 2017. The timber rattlesnake habitat assessment study concluded that there is no suitable habitat for the timber rattlesnake within the Project area.

According to correspondence received from ODNR Ohio Natural Heritage Program (ONHP) (Appendix B), the Tranquility Wildlife Area and a mussel bed are within a one-mile radius of the Project area. The ODNR ONHP was unaware of any scenic rivers, state nature preserves or parks or national wildlife refuges, parks, or forests within a one-mile radius of the Project area.

A technical assistance request letter was also submitted to the USFWS. The USFWS response letter states that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project area (Appendix B). The USFWS recommends that impacts to wetlands and other water resources be avoided or minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The Project area includes potential roosting and foraging habitat for the federally endangered Indiana bat and federally threatened northern long-eared bat and is in the range of these species in Ohio (USFWS; Appendix B). Should the project site contain trees ≥3 inches dbh, the USFWS recommends trees be saved whenever possible. If any caves or abandoned mines may be disturbed, further coordination is requested. If no caves or abandoned mines are present and trees ≥3 inches dbh cannot be avoided, USFWS recommends that removal of trees ≥3 inches dbh only occur between October 1 and March 31 to avoid adverse effects to this species. If implementation of seasonal tree clearing is not possible, USFWS recommends summer presence/absence surveys be conducted between June 1 and August 15. AEP plans to conduct any necessary tree clearing for the Project between October 1 and March 31. Therefore, no adverse effects to the Indiana bat or northern long-eared bat are anticipated.

In addition, the USFWS stated that the Project lies within the range of the federally endangered running buffalo clover. If suitable habitat is present, USFWS recommends surveys for this species be conducted by a trained biologist in May or June when the plant is in flower. The survey must be coordinated with USFWS in advance. On behalf of AEP, Stantec's USFWS-approved running buffalo clover surveyors completed surveys for this species within the Project area in May of 2018. No running buffalo clover individuals or populations were observed. Therefore, no adverse effects to this species are anticipated.

Due to the project type, size, and location, USFWS does not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species.

5.0 References

Brack, Virgil Jr., Dale W. Sparks, John O. Whitaker Jr., Brianne L. Walters, and Angela Boyer. 2010. Bats of Ohio. Indiana State University Center for North American Bat Research and Conservation.

Cowardin, L.M., V. Carter V., F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Report No. FWS/OBS/-79/31.Washington, D.C.

Davis, Jeffrey G. 2017. Eastern Spadefoot (*Scaphiopus holbrookii*) Habitat Assessment along the AEP Ware Rd-Seaman Project, Pike and Adams Counties, Ohio.

Gordon, M.E. and J.B. Layzer. 1989. Mussels (Bivalvia: Unionoidea) of the Cumberland River review of life histories and ecological relationships. U.S. Fish and Wildlife Service Biological Report, 89(15): 1-99.

Harvey, Michael J., J. Scott Altenbach, and Troy L. Best. 1999. Bats of the United States. Arkansas Game & Fish Commission, Little Rock, Arkansas. 64 pp.

Mack, J.J. 2001. Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.

Munroe, Kevin. 2012. Uhler's Sundragonm. Dragonflies of Northern Virginia.

NatureServe. 2020. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. Available https://explorer.natureserve.org/. Accessed June 2020.

Ohio Department of Natural Resources (ODNR) Division of Wildlife. 2006. PUB 423 (R0308). Owls of Ohio Field Guide. Available at: https://ohiodnr.gov/static/documents/wildlife/backyard-wildlife/Owls%20of%20Ohio%20Field%20Guide%20pub423.pdf. Accessed August 28, 2020.

ODNR Division of Wildlife. 2012. PUB 5348 (R0712). Amphibians of Ohio Field Guide. Available at: https://ohiodnr.gov/static/documents/wildlife/backyard-wildlife/Amphibians%20of%20Ohio%20Field%20Guide%20pub348.pdf. Accessed August 28, 2020.

ODNR Division of Wildlife. 2016. PUB 5344 (R0216). Mammals of Ohio Field Guide. Accessed Available at: https://ohiodnr.gov/static/documents/wildlife/backyard-wildlife/Mammals%20of%20Ohio%20Field%20Guide%20pub344.pdf. Accessed August 28, 2020.

ODNR Division of Wildlife. 2017a. PUB 5127 (R0417). Stream Fishes of Ohio Field Guide. Available at: https://ohiodnr.gov/static/documents/wildlife/backyard-

wildlife/pub5127%20Stream%20Fishes%20of%20Ohio%20Field%20Guide.pdf. Accessed August 28, 2020.

ODNR Division of Natural Areas and Preserves. 2017b. Rare Plants of Ohio. Available at: http://naturepreserves.ohiodnr.gov/rareplants. March 1, 2017.

ODNR Division of Wildlife. 2018. PUB 5354 (R0118). Reptiles of Ohio Field Guide. Available at: https://ohiodnr.gov/static/documents/wildlife/backyard-wildlife/Pub%205354_Reptiles%20of%20Ohio%20Field%20Guide.pdf. Accessed August 28, 2020.

ODNR Division of Wildlife. 2020. State Listed Wildlife Species by County. Available at: https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/wildlife-management/wildlife-plants-county. Accessed August 28, 2020.

Ohio Department of Natural Resources Division of Wildlife and U.S. Fish and Wildlife Service (ODNR and USFWS) Ohio Ecological Services Field Office. 2020. Ohio Mussel Survey Protocol. Available at https://ohiodnr.gov/static/documents/wildlife/permits/dow-protocol-ohio-mussel-survey.pdf. Accessed August 28, 2020.

Ohio Environmental Protection Agency (OEPA). 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).

OEPA. 2018. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 4.0. Ohio EPA Division of Surface Water, Columbus, Ohio. 117 pp.

Parmalee, P. W. and A. E. Bogan. 1998. The Freshwater Mussels of Tennessee. University of Tennessee Press: Knoxville, Tennessee. 328 pp.

Paulson, Dennis R. and Dunkle, Sidney W. 2011. A Checklist of North American Odonata (PDF). Tacoma, WA, US: Slater Museum of Natural History, University of Puget Sound. p. 61.

Sparks, Dale W., Curtis J. Schmidt, and Jerry R. Choate. 2011. Bats of Kansas. Indiana State University Center for North American Bat Research and Conservation, Terre Haute, Indiana. 60 pp.

U.S. Army Corps of Engineers (USACE), Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterway Experiment Station, Vicksburg, Mississippi.

USACE. 2002. Issuance of Nationwide Permits; Notice**,** 67 Fed. Reg. 10. January 15, 2002. Federal Register: The Daily Journal of the United States. Available at https://www.gpo.gov/fdsys/pkg/FR-2002-01-15/pdf/02-539.pdf.

USACE. 2005. *Guidance on Ordinary High Water Mark Identification* (Regulatory Guidance Letter, No. 05-05). Available online at

http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-05.pdf. Accessed March 1, 2017.

USACE. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0), ed. J.F. Berkowitz, J.S. Wakely R.W. Lichvar, C.V. Noble. ERDC/EL TR-12-9. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service (USFWS). 1994. Clubshell (Pleurobema clava) and Northern Riffleshell (*Epioblasma torulosa rangiana*) Recovery Plan. Prepared for the U.S. Fish and Wildlife Service, Hadley, Massachusetts. 68 pp.

USFWS. 2007a. Indiana bat (*Myotis sodalis*) draft recovery plan: First revision. U.S. Fish and Wildlife Service, Ft. Snelling, Minnesota. 258 pp.

USFWS. 2007b. Running buffalo clover (Trifolium stoloniferum) Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 76 pp.

USFWS. 2016. Environmental Conservation Online System (ECOS): Species Profile for Northern Long-eared Bat (Myotis septentrionalis). Available online at https://ecos.fws.gov/tess_public/profile/speciesProfile?spcode=A0JE. March 1, 2017.

USFWS. 2018. Federally Listed Species by Ohio Counties. Available at https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyList29Jan2018.pdf. Accessed June 2020.

USFWS. 2020. 2020 Range-wide Indiana Bat Summer Survey Guidelines, March 2020. Available at https://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/FINAL%20Range-wide%20IBat%20Survey%20Guidelines%203.23.20.pdf. Accessed August 2020.

Watters, G. T., M. A. Hoggarth, and D. H. Stansbery. 2009. The Freshwater Mussels of Ohio. The Ohio State University Press, Columbus, OH. 421 pp.

Appendix A Figures

A.1 FIGURE 1 – PROJECT LOCATION MAP

Figure No.

1

Project Location Map

193704860

AEP Ohio Transmission Company, Inc.
Seaman-Adams 138 kV Transmission Line
Rebuild Project

Project Location
Adams County, Ohio

Prepared by JLH on 2020-08-27
TR by KB on 2020-09-11
IR Review by DJG on 2020-09-11

N

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(At original document size of 11x17)
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Legend

- AEP Substation
- Existing Structure to be Removed
- Proposed New Structure
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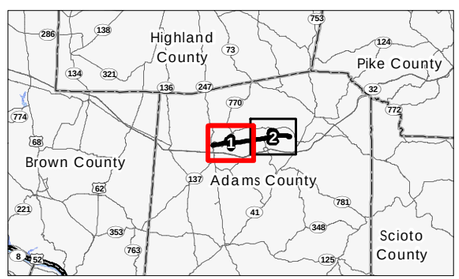
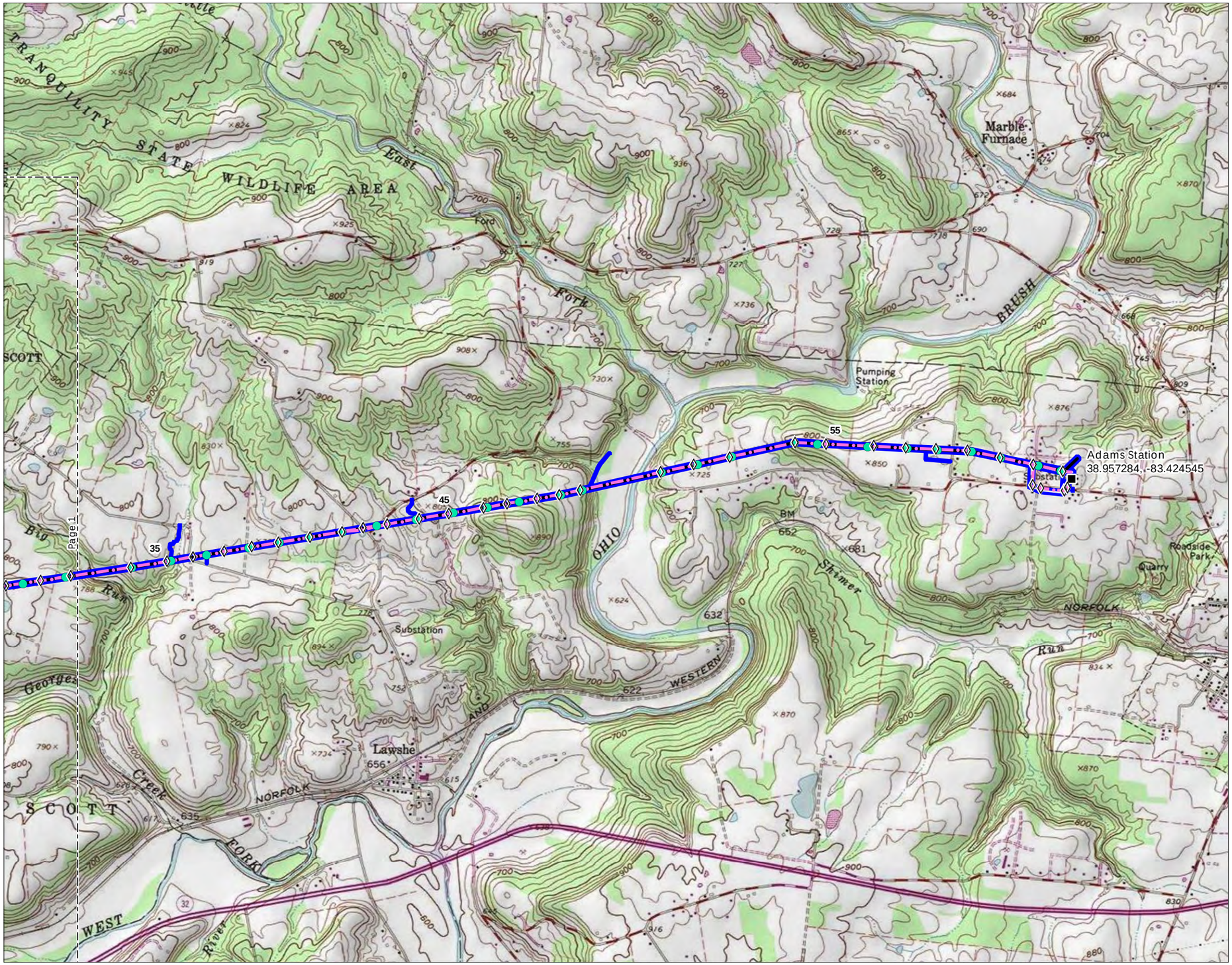
- Proposed 138 kV Transmission Line
- Project Area



1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources: Stantec, AEP, USGS, FEMA, OGRIP, NADS
3. Background: USGS 7.5' Topographic Quadrangles - Seaman, OH (1982) & Peebles, OH (1982)

Stantec



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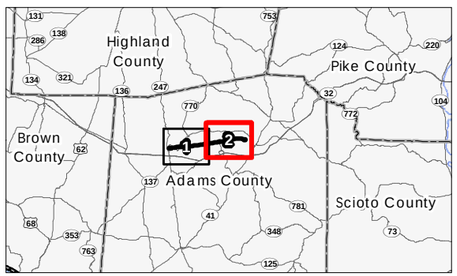

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Stantec

A.2 FIGURE 2 – WETLAND AND WATERBODY DELINEATION MAP

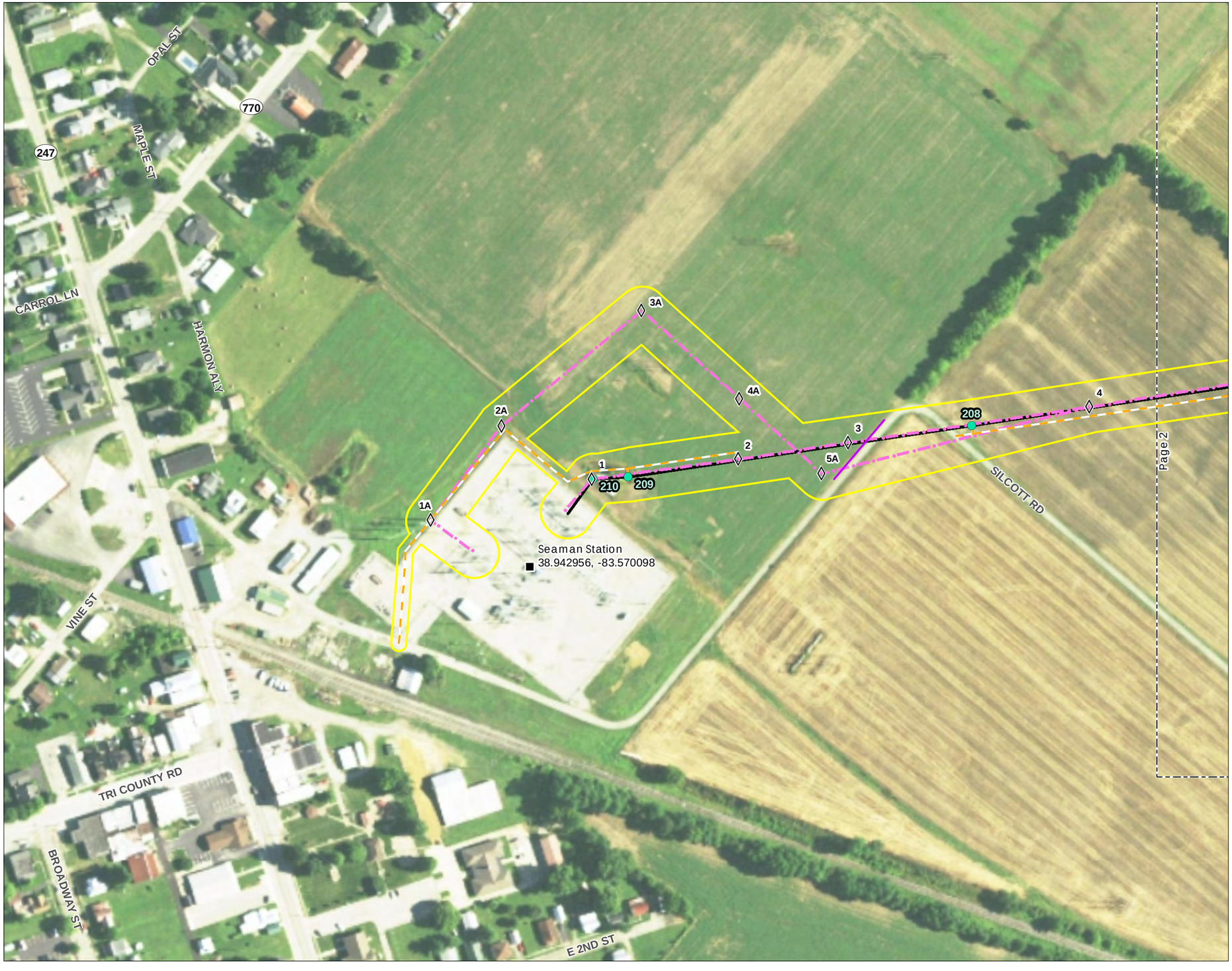

Figure No.

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Wetland and Waterbody Delineation Map

193704860

AEP Ohio Transmission Company, Inc.
Seaman-Adams 138 kV Transmission Line
Rebuild Project

Project Location
Adams County, Ohio

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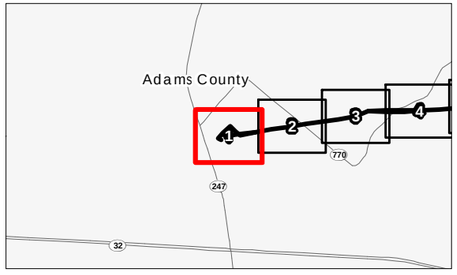
- Approximate Wetland

FEMA Flood Hazard Area

- 100-year Flood Zone
- 100-year Floodway



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Stantec

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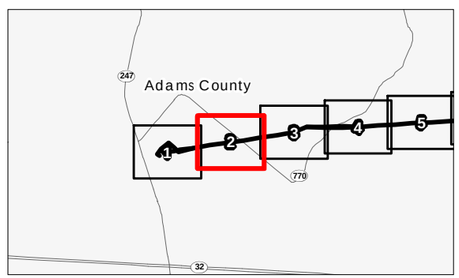

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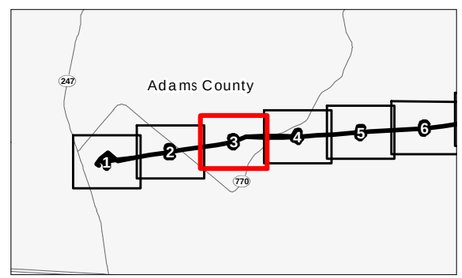

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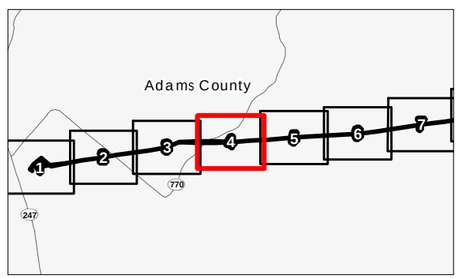

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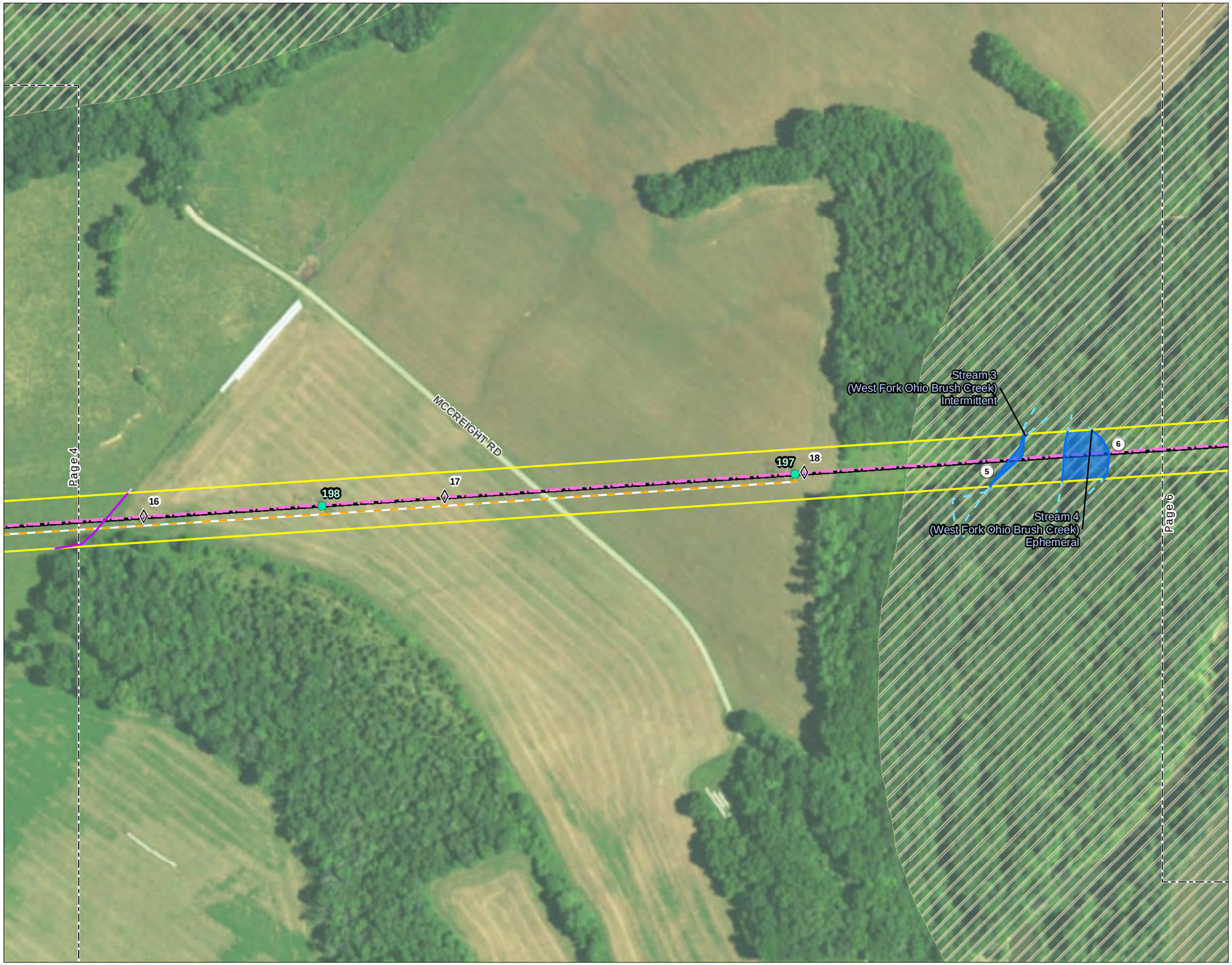

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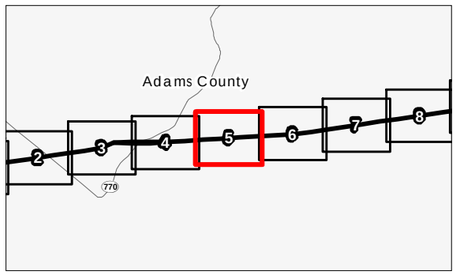

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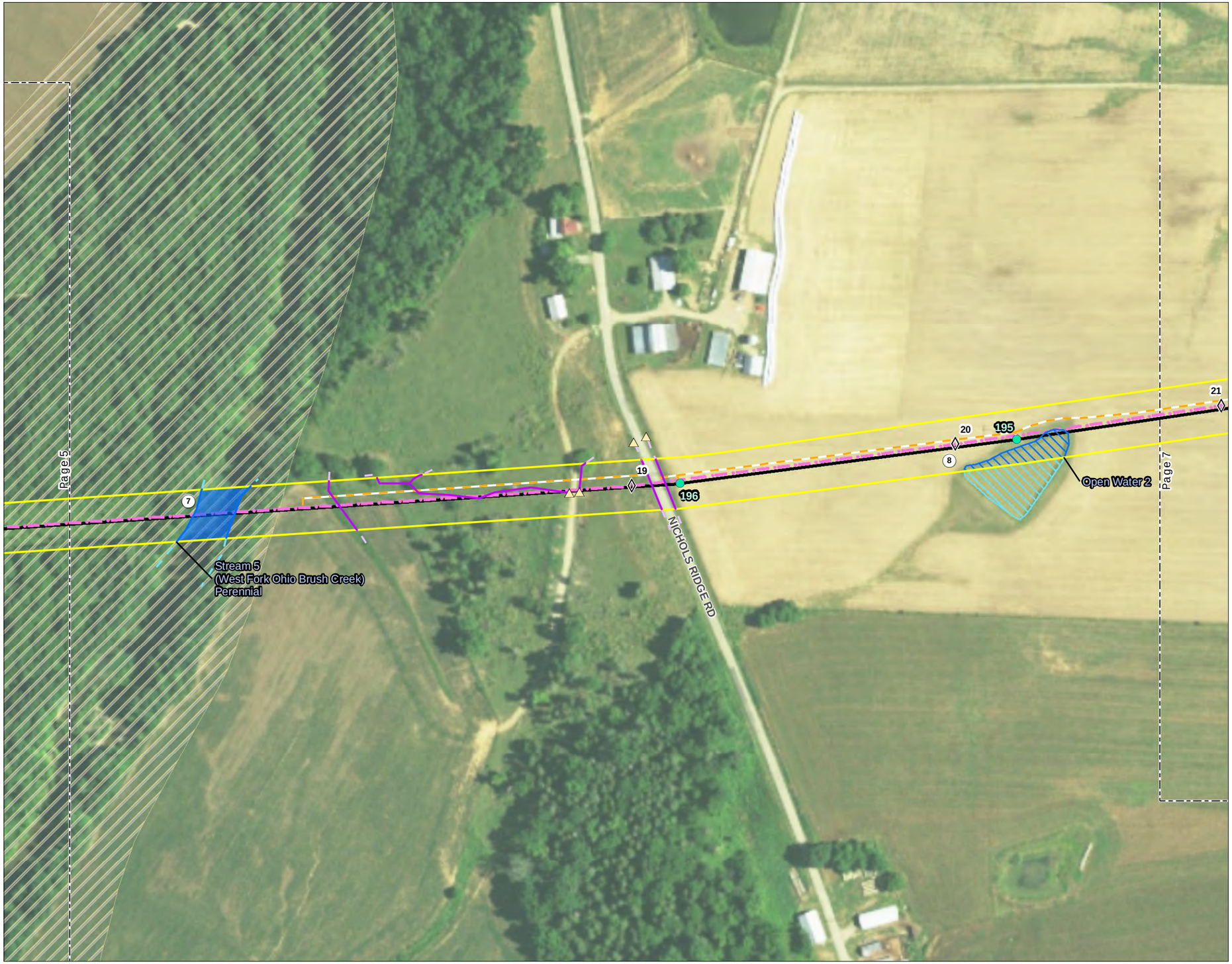

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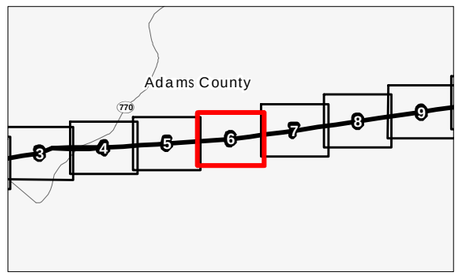

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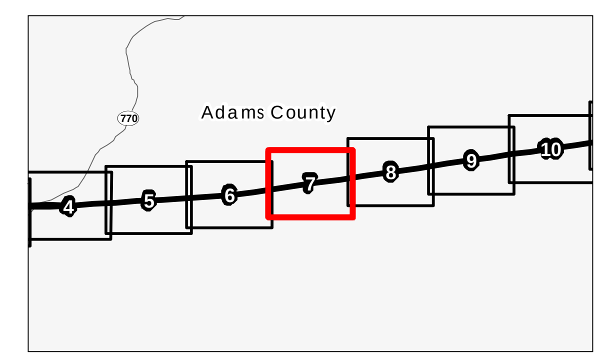

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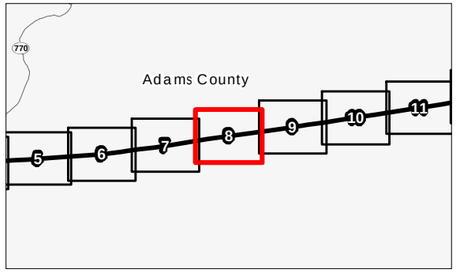

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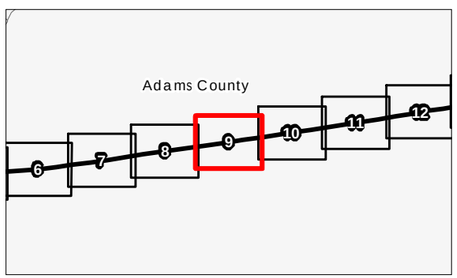

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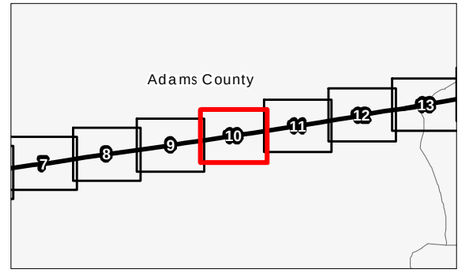

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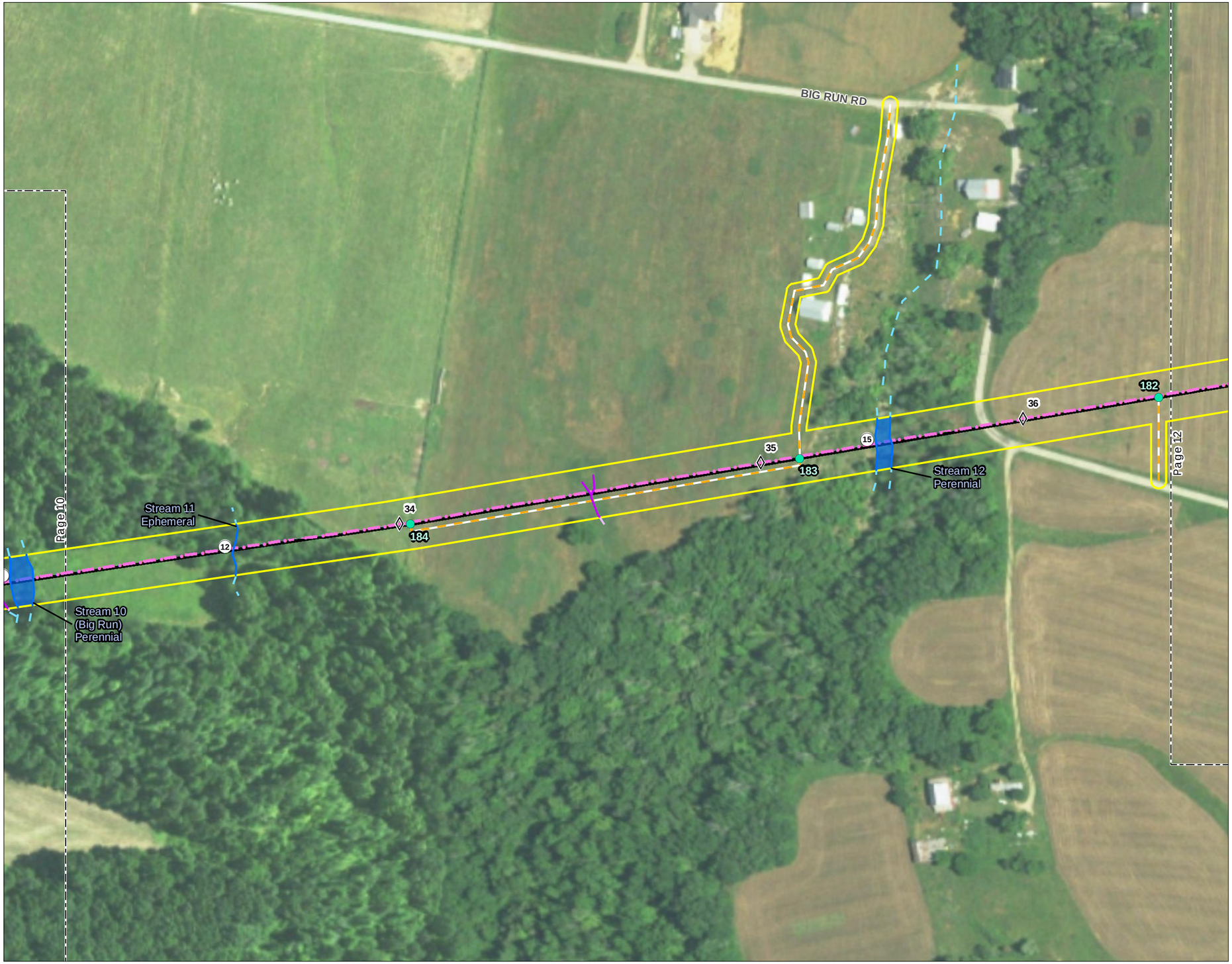

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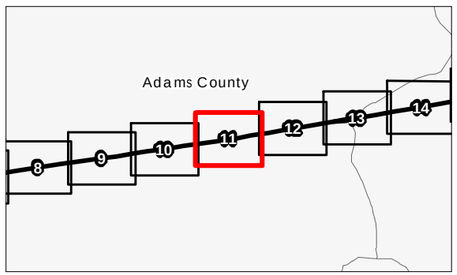

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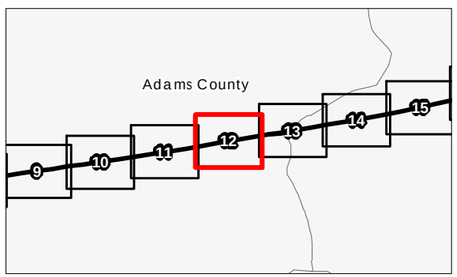

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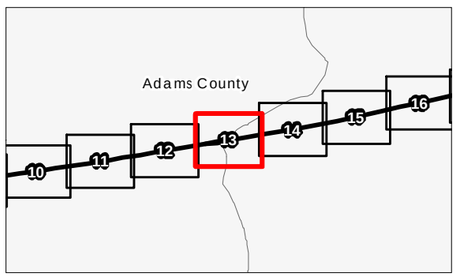

Notes
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3. Background: 2017 NAIP

Stantec

Figure No.

2

Wetland and Waterbody Delineation Map

193704860

AEP Ohio Transmission Company, Inc.
Seaman-Adams 138 kV Transmission Line
Rebuild Project

Project Location
Adams County, Ohio

Prepared by JLH on 2020-08-27
TR by KB on 2020-09-11
IR Review by DJG on 2020-09-11

N

0 100 200 Feet

(At original document size of 11x17)
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Legend

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- Proposed New Structure
- Existing 138 kV Transmission Line to be Replaced
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FEMA Flood Hazard Area

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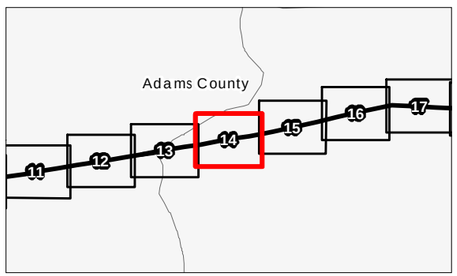
- 100-year Floodway



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FEMA Flood Hazard Area

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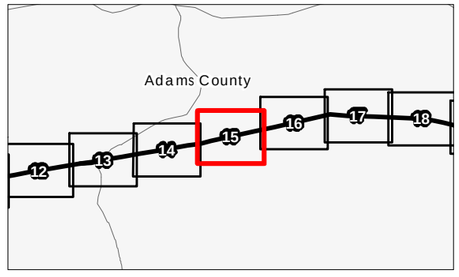

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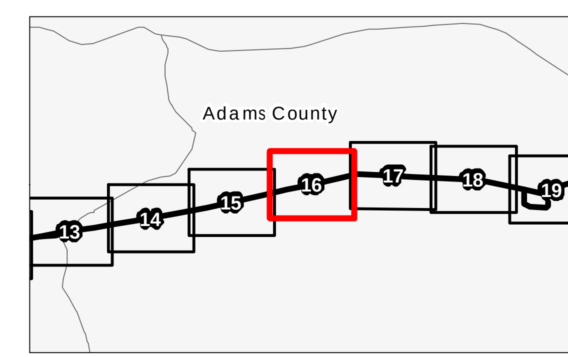

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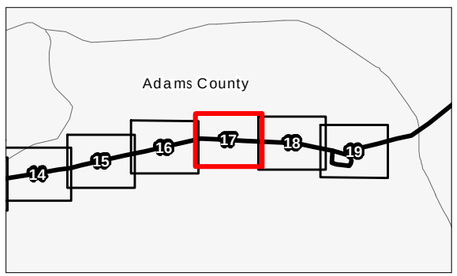

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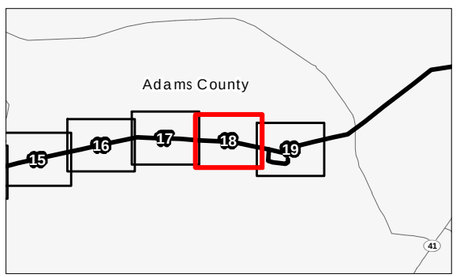

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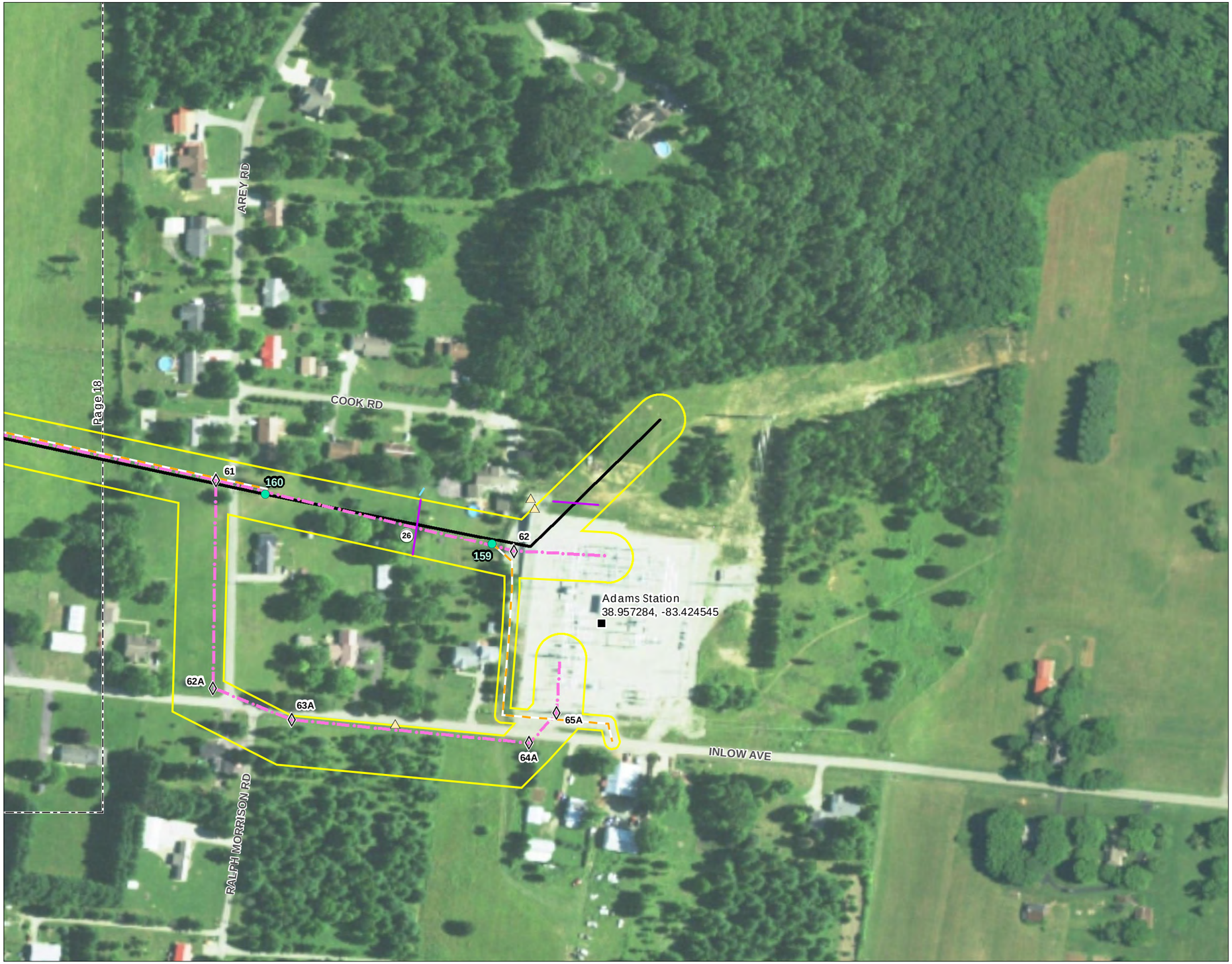

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FEMA Flood Hazard Area

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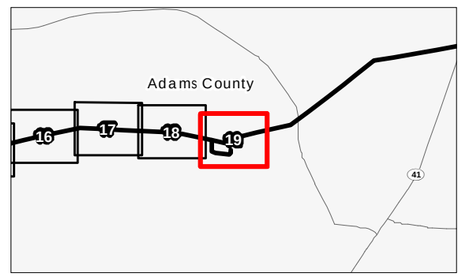

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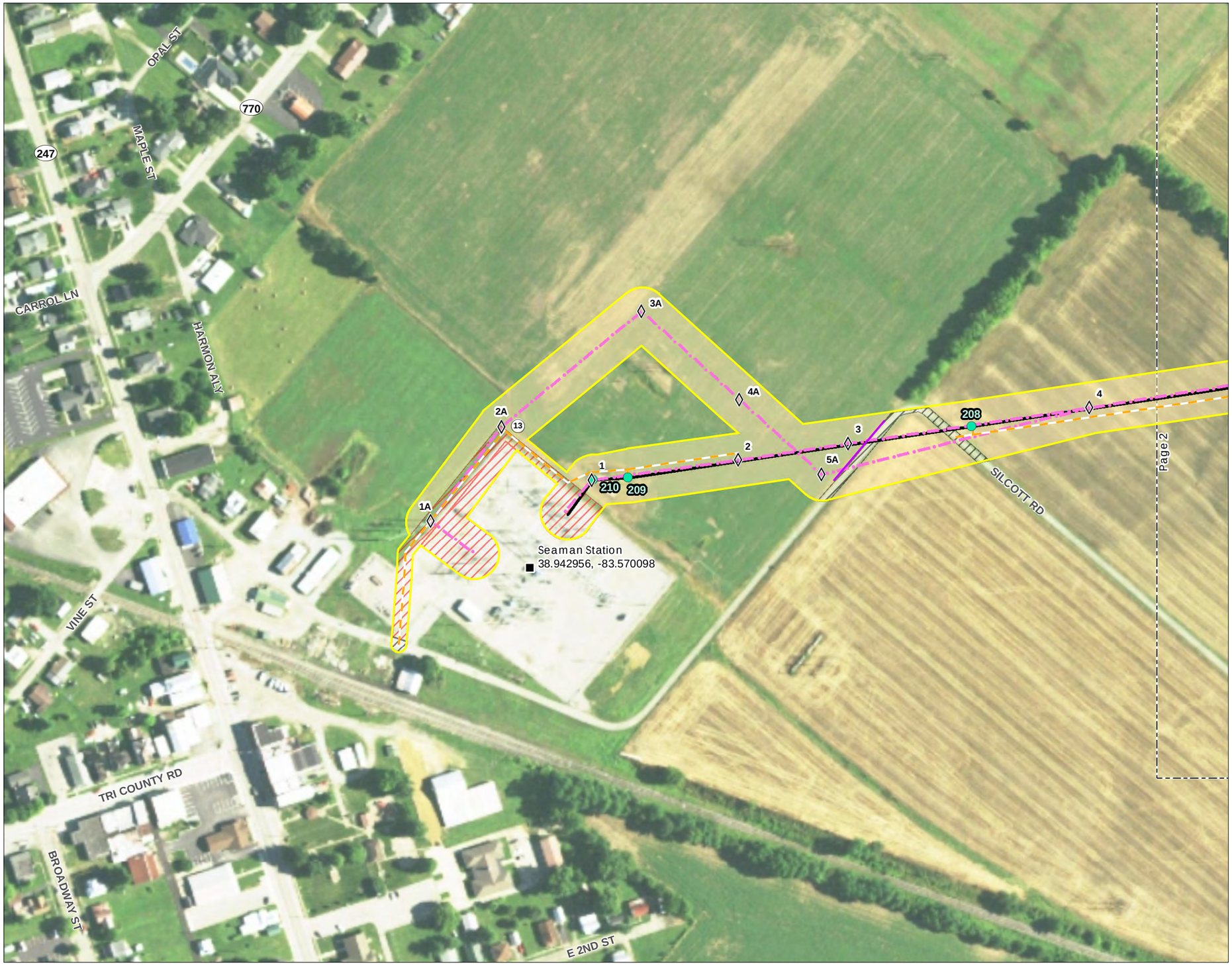
A.3 FIGURE 3 – HABITAT ASSESSMENT MAP



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Habitat Assessment Map

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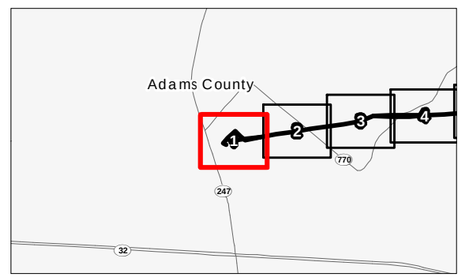

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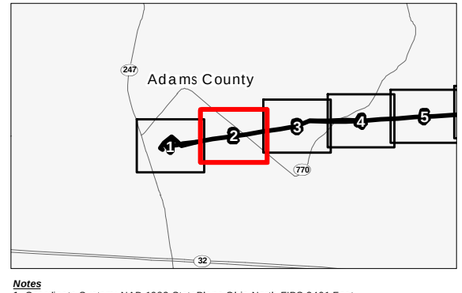

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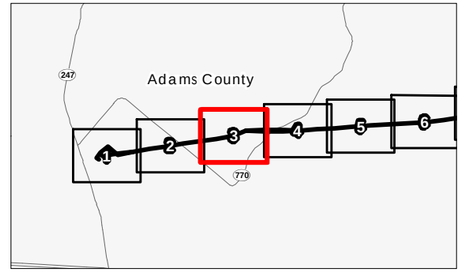

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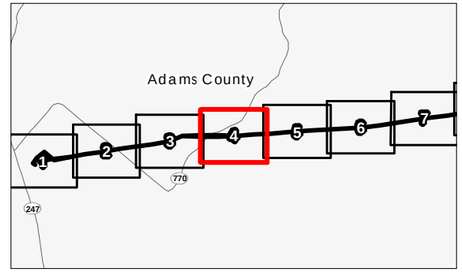

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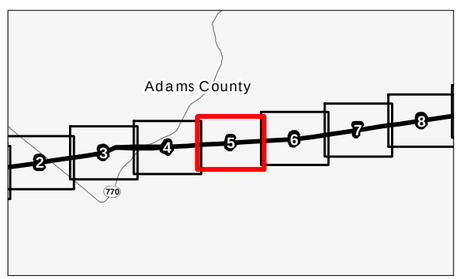

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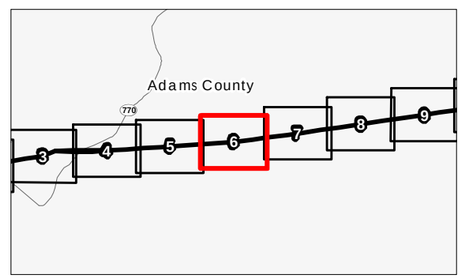

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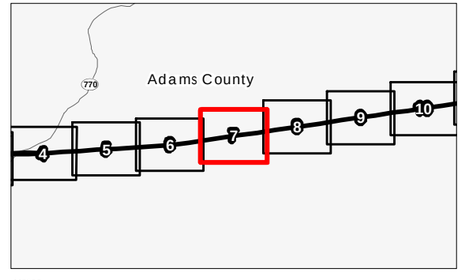

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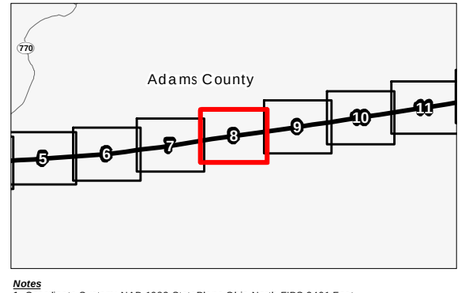

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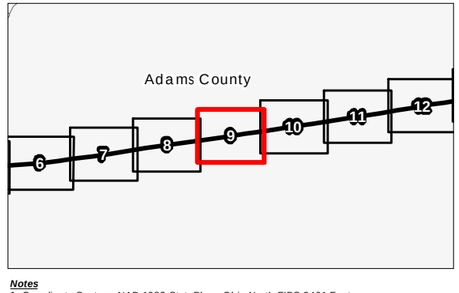

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3. Background: 2017 NAIP

Stantec

Figure No.

3

Habitat Assessment Map

193704860

AEP Ohio Transmission Company, Inc.
Seaman-Adams 138 kV Transmission Line
Rebuild Project

Project Location
Adams County, Ohio

Prepared by JLH on 2020-08-27
TR by KB on 2020-09-11
IR Review by DJG on 2020-09-11

N

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Legend

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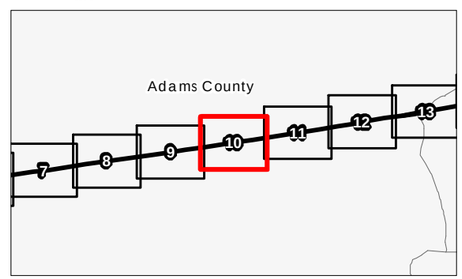

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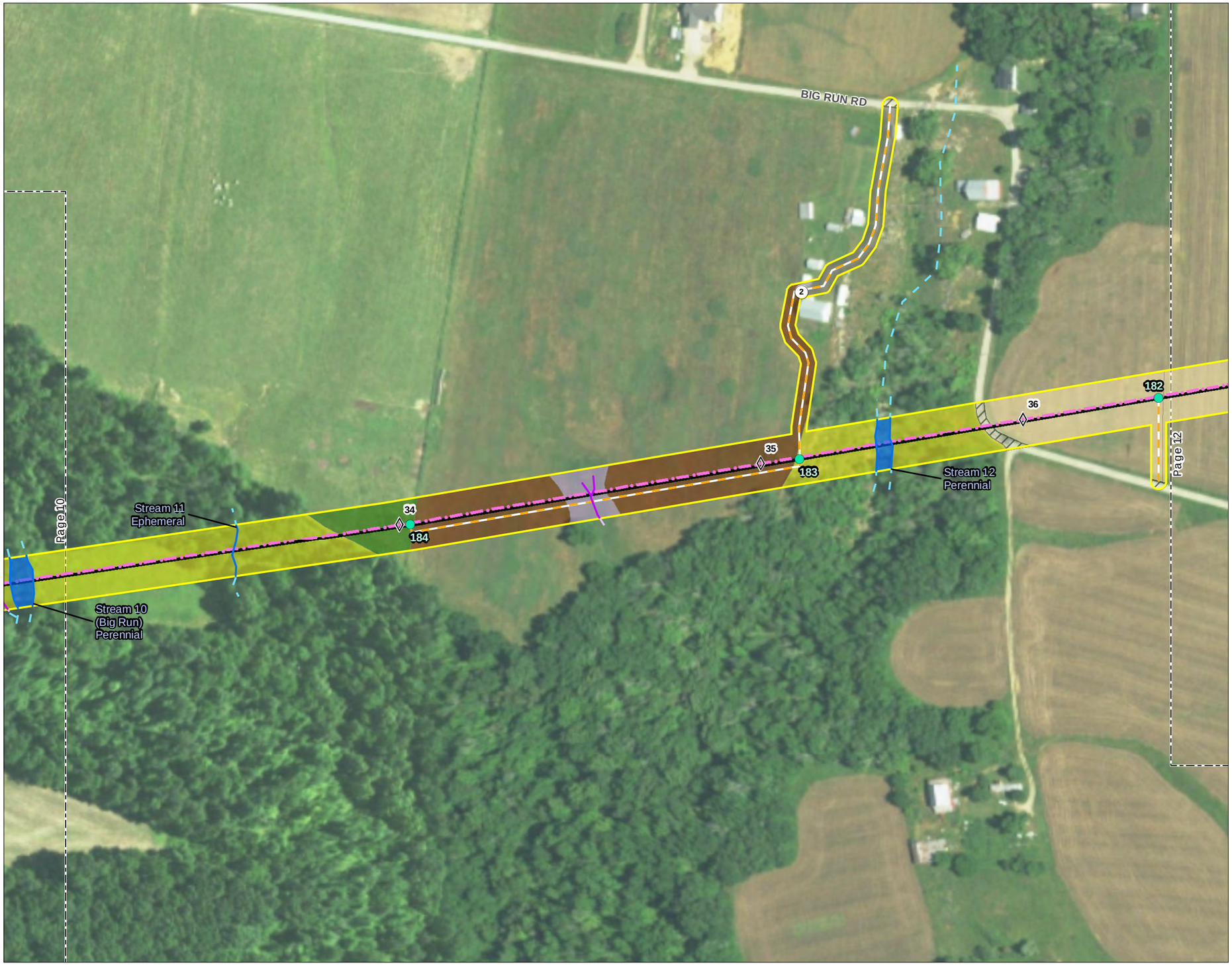

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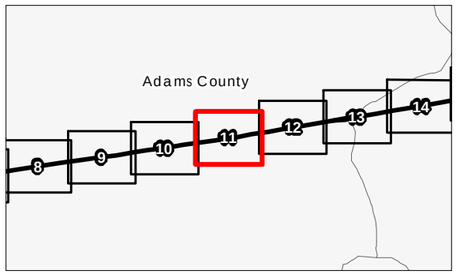

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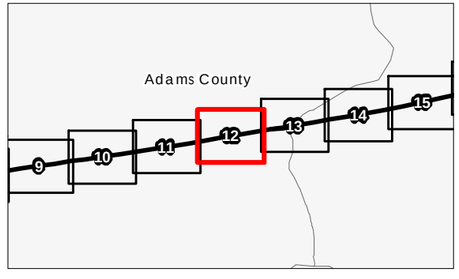

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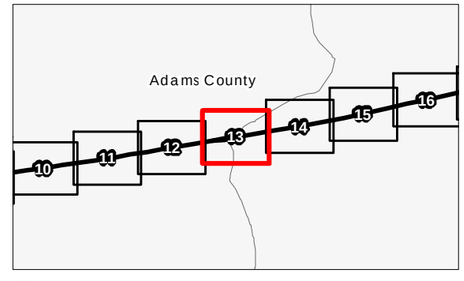

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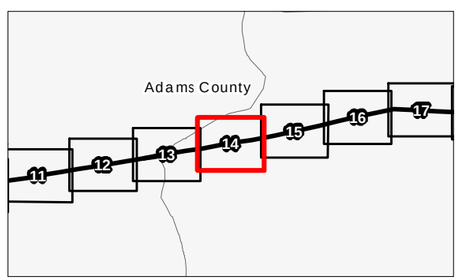

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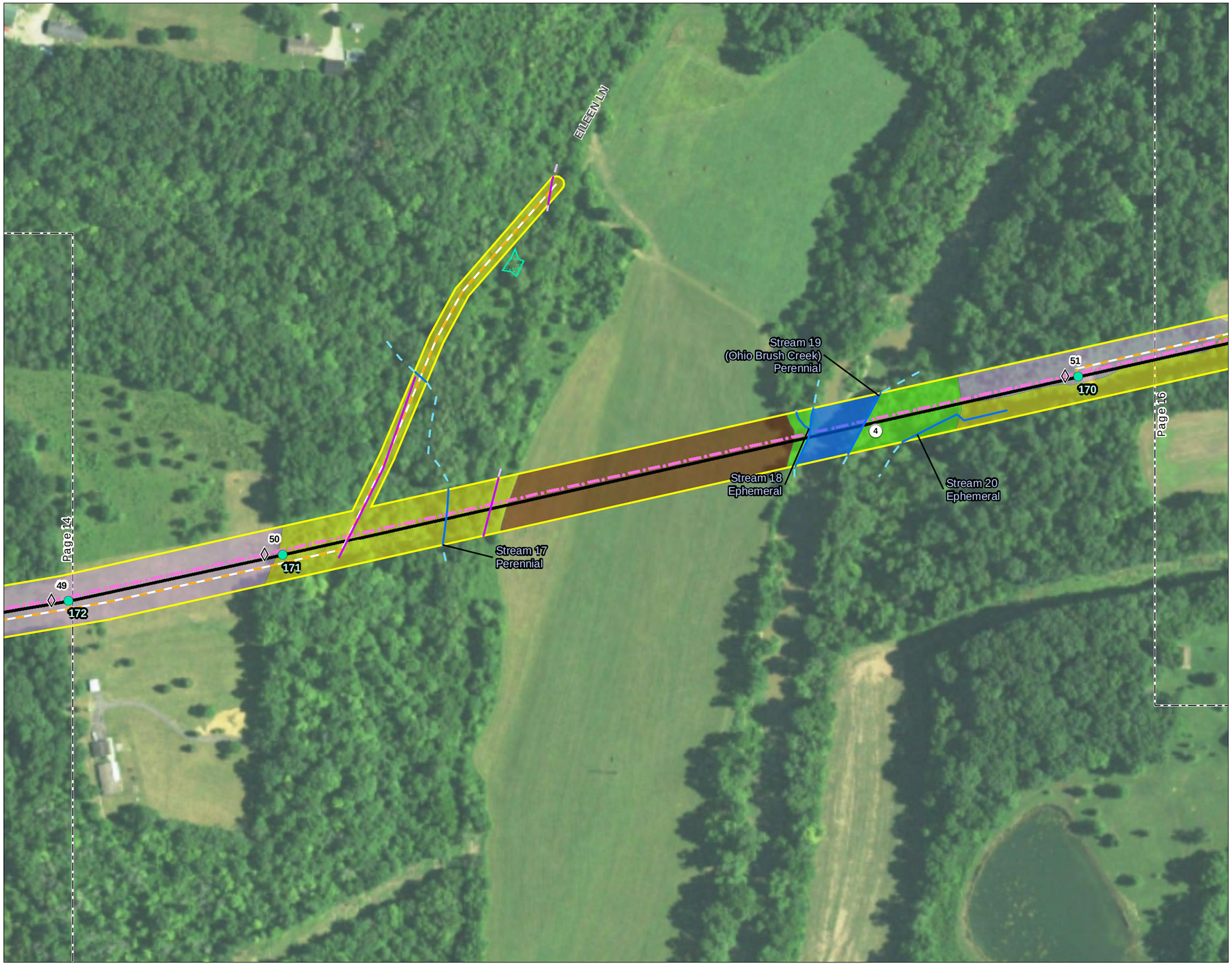

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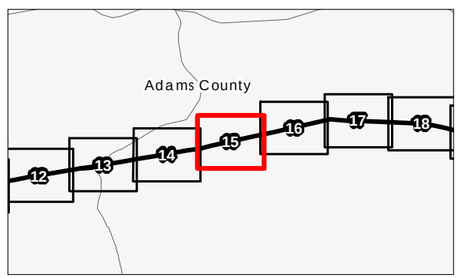

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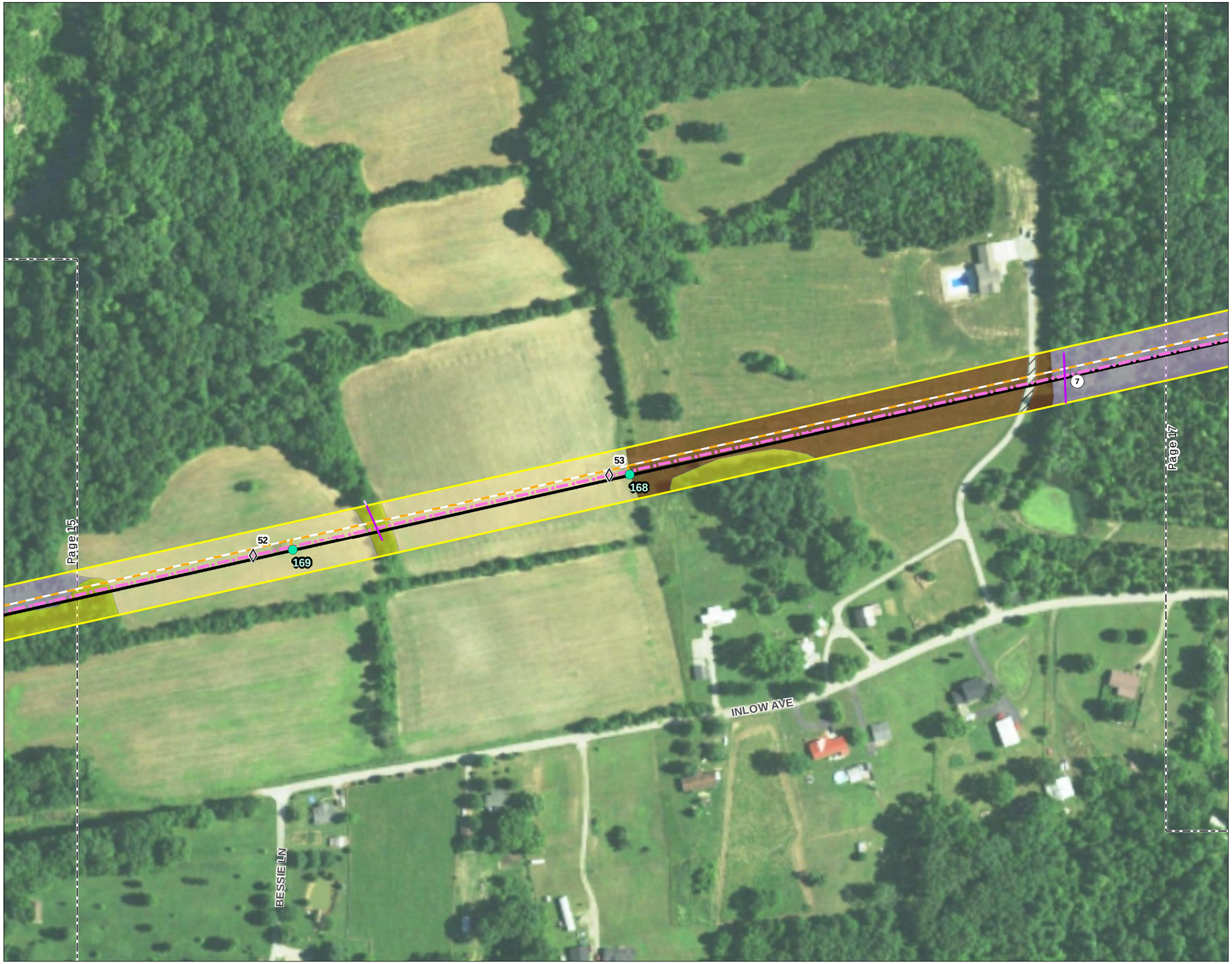

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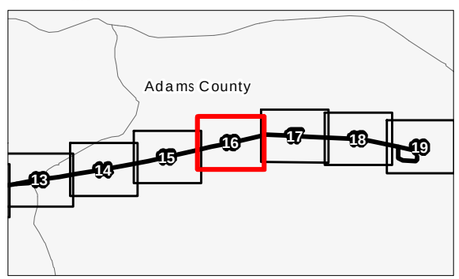

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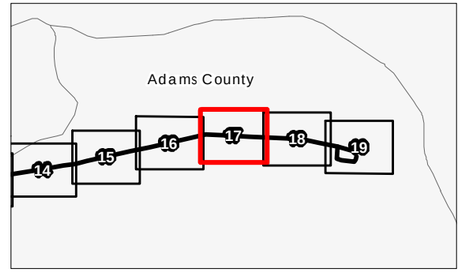

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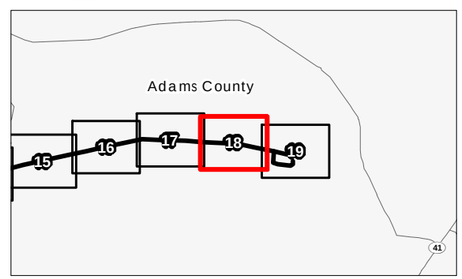

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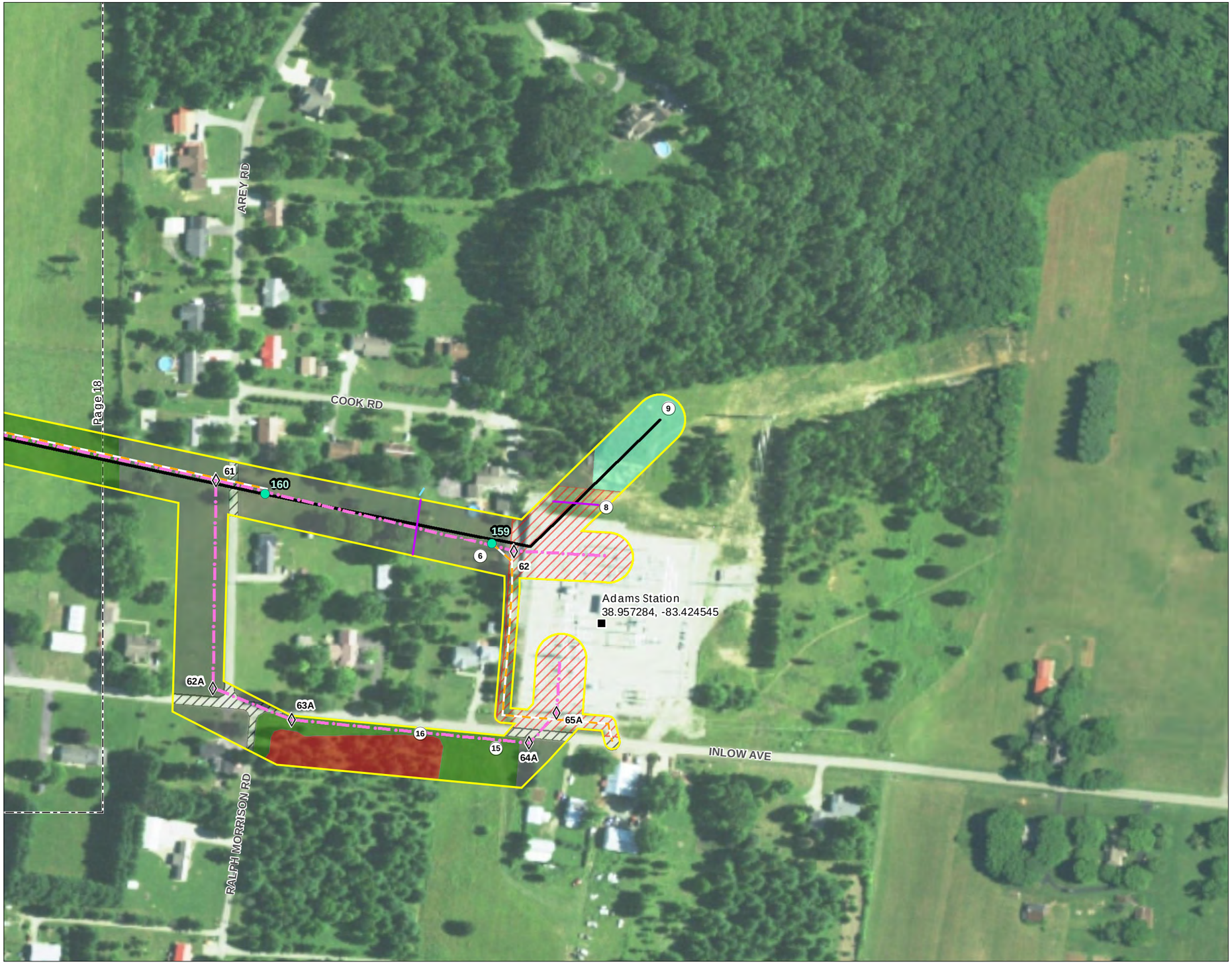

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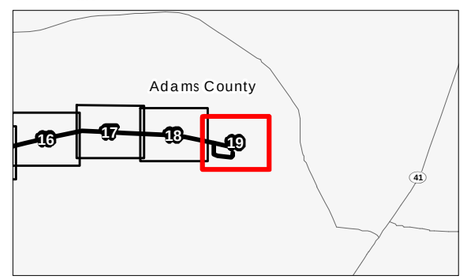

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Stantec

Appendix B Agency Correspondence

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

February 24, 2017

Dan Godec
Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati, Ohio 45241

Re: 17-053; Request for Environmental Review, Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project

Project: The proposed consists of the rebuilding of approximately 32.8 miles of the Waverly-Adams-Seaman 138 kV transmission line.

Location: The proposed project is located in Scott, Meigs and Franklin Townships, Adams County, and Sunfish, Benton, Pebble and Pee Pee Townships, Pike 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 data request response dated December 16, 2016 is included on pages 10-15 of the project documentation.

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 any to cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the 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 clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the Northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the yellow sandshell (*Lampsilis teres*), a state endangered mussel, the washboard (*Megalonaias nervosa*), a state endangered mussel, the butterfly (Ellipsaria lineolata), a state endangered mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the ebonyshell (*Fusconaia ebenus*), a state endangered mussel, the wartyback (*Quadrula nodulata*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2016), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at:

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

The project is within the range of the shortnose gar (*Lepisosteus platostomus*), a state endangered fish, the popeye shiner (*Notropis ariommus*), a state endangered fish, the goldeye (*Hiodon alosoides*), a state endangered fish, the shovelnose sturgeon (S*caphirhynchus platorynchus*), a state endangered fish, the channel darter (*Percina copelandi*), a state threatened fish, the blue sucker (*Cycleptus elongatus*), a state threatened fish, the bigeye shiner (*Notropis boops*), a state threatened fish, the American eel (*Anguilla rostrata*), a state threatened fish, the Tippecanoe

darter (*Etheostoma tippecanoe*), a state threatened fish, and the river darter (*Percina shumardi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, 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. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. The DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the project route. If suitable habitat is found to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by an approved herpetologist. Survey reports can be submitted to Nathan Reardon, DOW Compliance Coordinator at Nathan.reardon@dnr.state.oh.us.

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. The DOW recommends that a habitat suitability survey be conducted by an approved herpetologist to determine if suitable habitat is present along the project route. If suitable habitat is found to be present, the DOW recommends that a presence/absence survey be conducted, or an avoidance/minimization plan be developed and implemented by an approved herpetologist. Survey reports can be submitted to Nathan Reardon, DOW Compliance Coordinator at Nathan.reardon@dnr.state.oh.us.

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

The project is within the range of the Kramer's cave beetle *Pseudanophthalmus krameri*), a state endangered species, and the Ohio cave beetle (*Pseudanophthalmus ohioensis*), a state endangered species. These species are found only in caves. The Ohio Cave Protection Law, Section 1517.21 of the Ohio Revised Code, protects caves from impacts, in turn, protecting the habitat of these species. Therefore, this project is not likely to have an impact on these 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/water-use-planning/floodplain-management#PUB

Forestry: The Division of Forestry has the following comments.

The proposed project will occur in part on Brush Creek State Forest. If access to Brush Creek State Forest land is necessary, those activities should be coordinated with the Forest Manager, Dale Egbert (Charles.Egbert@dnr.state.oh.us, 740-858-6685), in order to obtain a special use permit.

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
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

Ohio Division of Wildlife
APPROVED HERPETOLOGISTS

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

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

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

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

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

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

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

Ralph Pfingsten
347 Pineview Circle
Berea, Ohio 44017
rap347@wideopenwest.com
440-243-7568

Tim O. Matson
5696 Matson Rd
Geneva, OH 44041
tmatson@cmnh.org
440-417-8196

Jeff Davis
625 Crescent Road
Hamilton, Ohio 45013
ohiofrogs@gmail.com
513-868-3154

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

Doug Wynn
241 Chase Street, Apt. A3L
Russell's Point, Ohio 43348
Sistrurus@aol.com
614-306-0313

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

October 2016

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

Godec, Daniel

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Monday, December 19, 2016 12:44 PM
To: Godec, Daniel
Subject: Waverly-Adams-Seaman 138 kV Trans Line Rebuild, Pike & Adams Co. (REVISED)

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-0407

Dear Mr. Godec,

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.

The proposed project lies within the range of **running buffalo clover** (*Trifolium stoloniferum*), a federally listed endangered species. This plant can be found in partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails. Running buffalo clover requires periodic disturbance and a somewhat open habitat to successfully flourish, but cannot tolerate full-sun, full-shade, or severe disturbance. If suitable habitat is present, we recommend that surveys for this species be conducted by a trained botanist in May or June when the plant is in flower. The survey must be coordinated with this office in advance.

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 Office Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

Ohio Division of Wildlife
Raymond W. Petering, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

December 13, 2016

Dan Godec
Stantec Consulting Services, Inc.
11687 Lebanon Rd.
Cincinnati, OH 45241

Dear Mr. Godec,

I have reviewed the Natural Heritage Database for the Waverly-Adams-Seaman 138 kV Transmission Line Rebuild project area, including a one mile radius, in Scott, Meigs and Franklin Townships, Adams County and Sunfish, Benton, Pebble and Pee Pee Townships, Pike County, Ohio. The numbers/letters on the list below correspond to the areas marked on the accompanying map. Common name, scientific name and status are given for each species.

A. Tranquility Wildlife Area – ODNR Division of Wildlife
B. Chalet Nivale/Bacon Flats – Highlands Nature Sanctuary
C. Appalachian Highway Cliffs Conservation Site
D. Brush Creek State Forest – ODNR Division of Forestry (several parcels)
1. Mussel Bed
2. *Liatris squarrosa* – Scaly Blazing-star, potentially threatened
3. Cave or Cavern
Natural Bridge or Arch
Asplenium ruta-muraria – Wall-rue, threatened
Viola walteri – Walter's Violet, threatened
Thuja occidentalis – Arbor Vitae, potentially threatened
Draba cuneifolia – Wedge-leaved Whitlow-grass, threatened
Draba reptans – Carolina Whitlow-grass, threatened
Ranunculus fascicularis – Early Buttercup, threatened
Cardamine dissecta – Narrow-leaved Toothwort, potentially threatened
4. *Silene caroliniana* ssp. w*herryi* – Wherry's Catchfly, threatened
5. *Silene caroliniana* ssp. w*herryi* – Wherry's Catchfly, threatened
6. *Notropis boops* – Bigeye Shiner, threatened
7. *Potamogeton tennesseensis* – Tennessee Pondweed, threatened
8. *Potamogeton tennesseensis* – Tennessee Pondweed, threatened

A Conservation Site is an area deemed by the Natural Heritage Program to be a high quality natural area not currently under formal protection. It may, for example, harbor one or more rare species,

be an outstanding example of a plant community or have geologically significant features, etc. These sites may be in private ownership and our listing of them does not imply permission for access.

We are unaware of any scenic rivers, state nature preserves or parks or national wildlife refuges, parks or forests within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

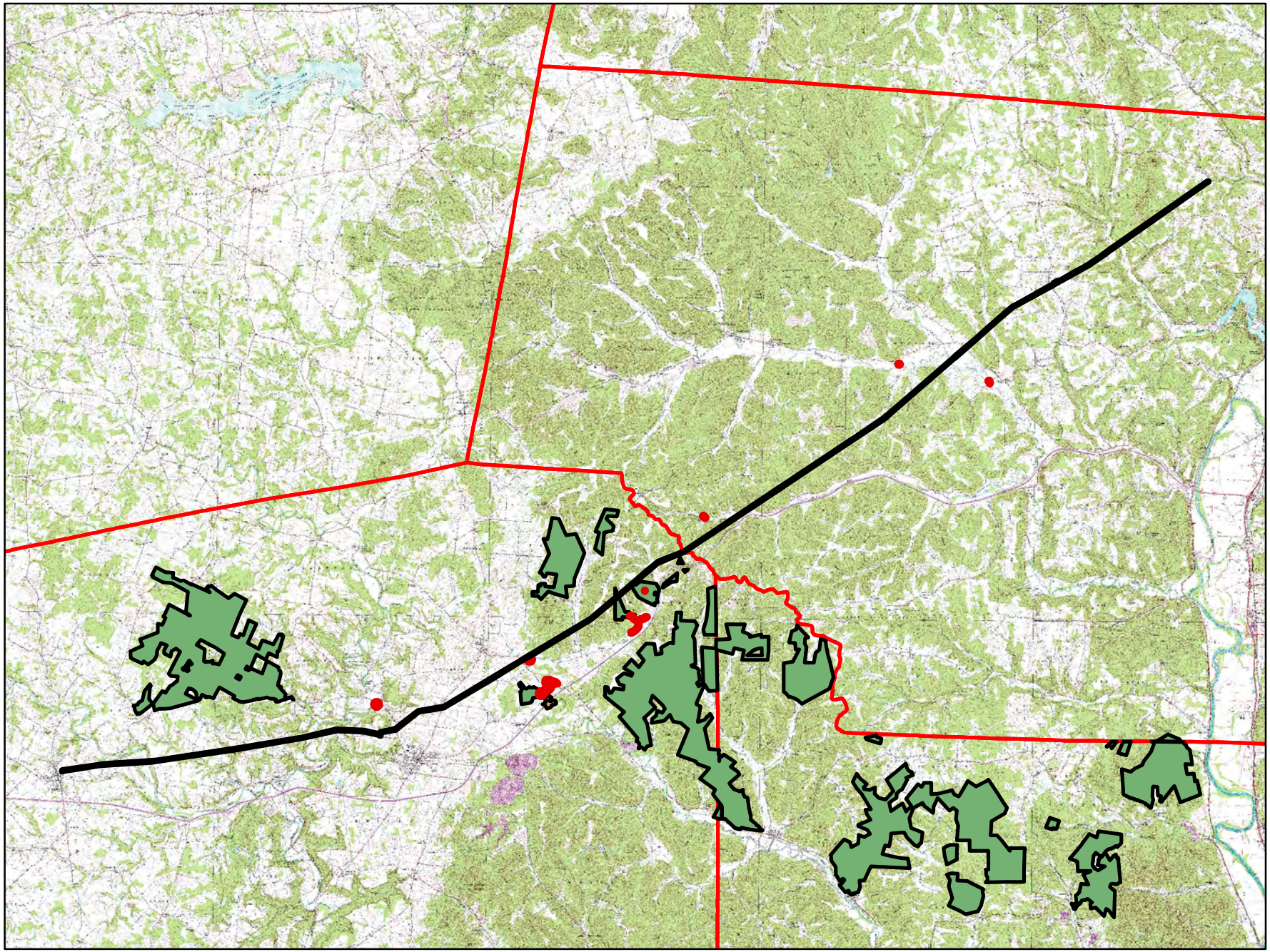
Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

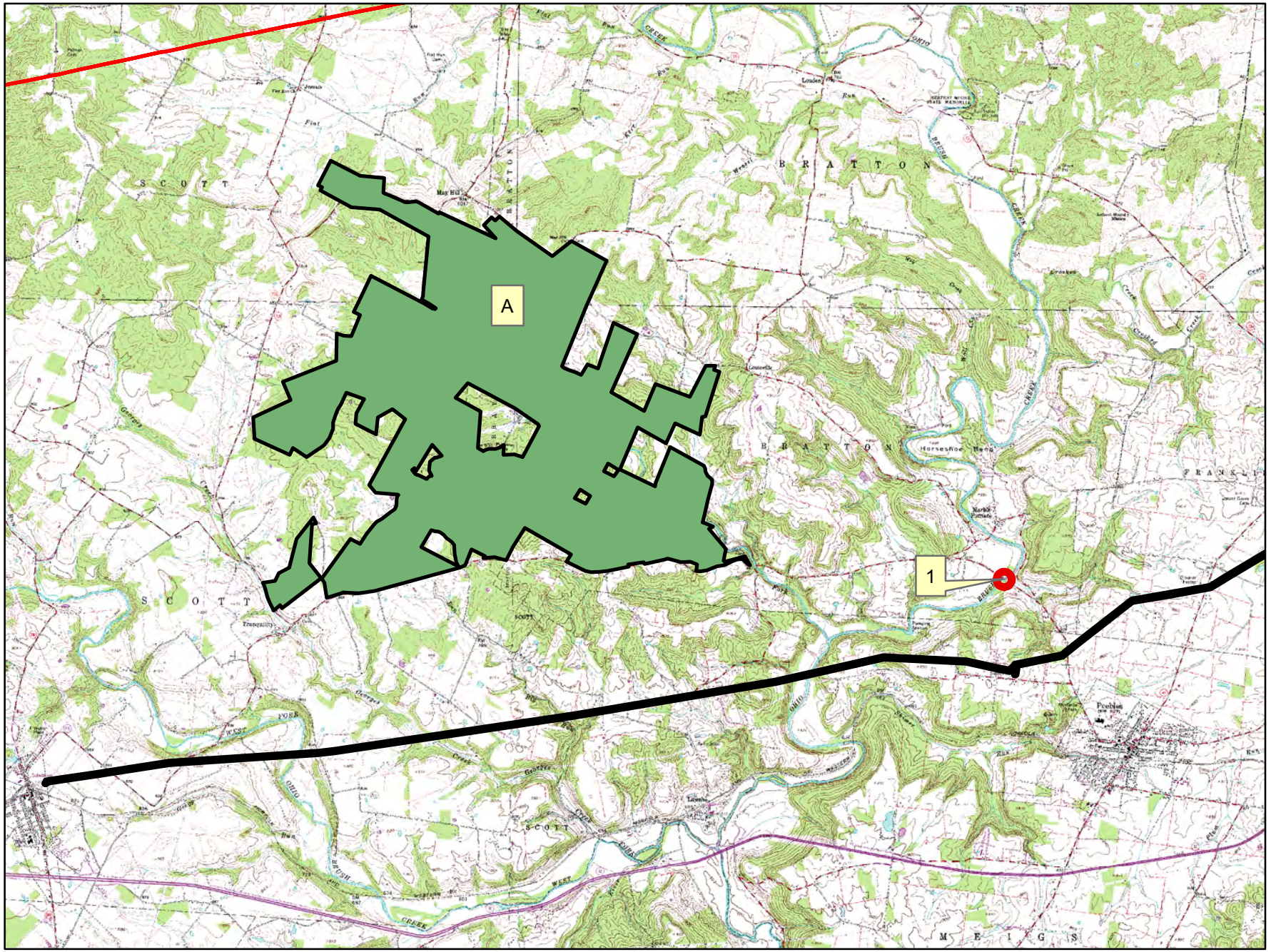
Debbie Woischke

Debbie Woischke
Ohio Natural Heritage Program

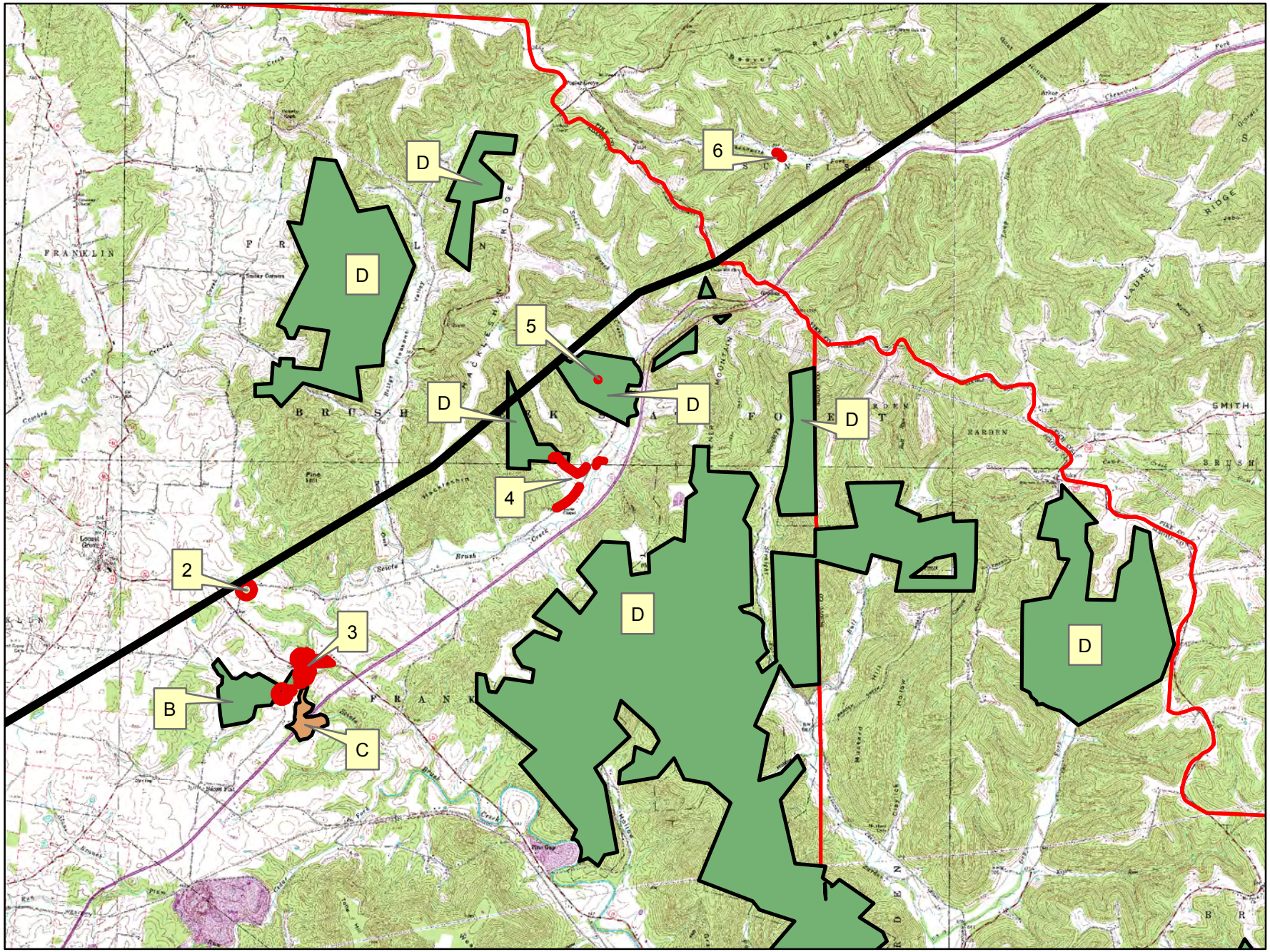
Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



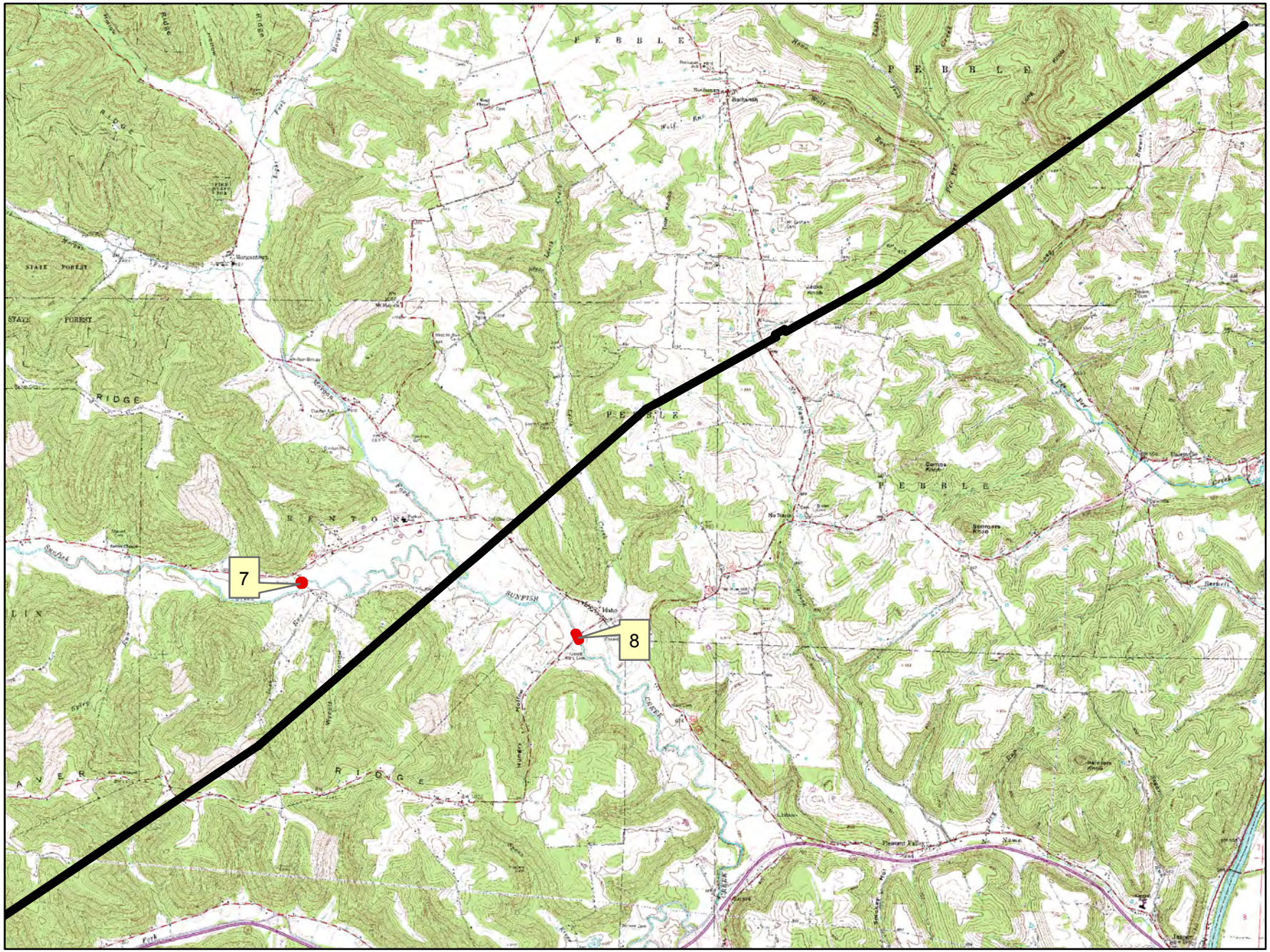
Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



Waverly-Adams-Seaman 138 kV Transmission Line Rebuild Project



Appendix C Representative Photographs

C.1 WETLAND AND WATERBODY PHOTOGRAPHS

Photo Location 1. View of Open Water 1. Photograph taken facing east.

Photo Location 2. View of Stream 1. Photograph taken facing upstream/southwest.

Photo Location 2. View of Stream 1. Photograph taken facing downstream/northeast.

Photo Location 3. View of Stream 2. Photograph taken facing upstream/southwest.

Photo Location 3. View of Stream 2. Photograph taken facing downstream/northeast.

Photo Location 4. View of non-jurisdictional point at wetland determination sample point (SP 1). Photograph taken facing north.

Photo Location 5. View of Stream 3 (West Fork Ohio Brush Creek). Photograph taken facing upstream/north.

Photo Location 5. View of Stream 3 (West Fork Ohio Brush Creek). Photograph taken facing downstream/south.

Photo Location 6. View of Stream 4 (West Fork Ohio Brush Creek). Photograph taken facing upstream/north.

Photo Location 6. View of Stream 4 (West Fork Ohio Brush Creek). Photograph taken facing downstream/south.

Photo Location 7. View of Stream 5 (West Fork Ohio Brush Creek). Photograph taken facing upstream/north.

Photo Location 7. View of Stream 5 (West Fork Ohio Brush Creek). Photograph taken facing downstream/south.

Photo Location 8. View of Open Water 2. Photograph taken facing south.

Photo Location 9. View of Stream 6 (George's Creek). Photograph taken facing upstream/northwest.

Photo Location 9. View of Stream 6 (George's Creek). Photograph taken facing downstream/southeast.

Photo Location 10. View of Stream 7. Photograph taken facing upstream/north.

Photo Location 10. View of Stream 7. Photograph taken facing downstream/south.

Photo Location 11. View of Stream 8. Photograph taken facing upstream/northwest.

Photo Location 11. View of Stream 8. Photograph taken facing downstream/southeast.

Photo Location 12. View of Stream 9. Photograph taken facing upstream/northwest.

Photo Location 12. View of Stream 9. Photograph taken facing downstream/southeast.

Photo Location 13. View of Stream 10 (Big Run). Photograph taken facing upstream/north.

Photo Location 13. View of Stream 10 (Big Run). Photograph taken facing downstream/south.

Photo Location 14. View of Stream 11. Photograph taken facing upstream/south.

Photo Location 14. View of Stream 11. Photograph taken facing downstream/north.

Photo Location 15. View of Stream 12. Photograph taken facing upstream/north.

Photo Location 15. View of Stream 12. Photograph taken facing downstream/south.

Photo Location 16. View of Stream 13. Photograph taken facing upstream/south.

Photo Location 16. View of Stream 13. Photograph taken facing downstream/north.

Photo Location 17. View of Stream 14. Photograph taken facing upstream/south.

Photo Location 17. View of Stream14. Photograph taken facing downstream/north.

Photo Location 18. View of Stream 15. Photograph taken facing upstream/southeast.

Photo Location 18. View of Stream 15. Photograph taken facing downstream/northwest.

Photo Location 19. View of wetland determination sample point (SP 2) within Wetland 1. Photograph taken facing south.

Photo Location 19. View of wetland determination sample point (SP 2) within Wetland 1. Photograph taken facing southeast.

Photo Location 20. View of Stream 16. Photograph taken facing upstream/south.

Photo Location 20. View of Stream 16. Photograph taken facing downstream/north.

Photo Location 21. View of Stream 17. Photograph taken facing upstream/south.

Photo Location 21. View of Stream 17. Photograph taken facing downstream/north.

Photo Location 22. View of Stream 18. Photograph taken facing upstream/northwest.

Photo Location 22. View of Stream 18. Photograph taken facing downstream/southeast.

Photo Location 23. View of Stream 19 (Ohio Brush Creek). Photograph taken facing upstream/ north.

Photo Location 23. View of Stream 19 (Ohio Brush Creek). Photograph taken facing downstream/ south.

Photo Location 24. View of Stream 20. Photograph taken facing upstream/east.

Photo Location 24. View of Stream 20. Photograph taken facing downstream/west.

Photo Location 25. Representative view of Upland Drainage Feature (UDF) within Project Area. Photograph taken facing south.

Photo Location 26. Representative view of upland drainage feature (UDF) within Project Area. Photograph taken facing south.

Photo Location 27. View of intermittent portion of Stream 1. Photograph taken facing upstream/southwest.

Photo Location 27. View of intermittent portion of Stream 1. Photograph taken facing downstream/northeast.

Photo Location 27. View of substrates of Stream 1.

C.2 HABITAT PHOTOGRAPHS

Photo Location 1. Representative view of agricultural field habitat. Photograph taken facing west.

Photo Location 2. Representative view of hayfield habitat. Photograph taken facing west.

Photo Location 3. Representative view of pasture habitat. Photograph taken facing east.

Photo Location 4. Representative view of mixed early successional/second growth riparian forest habitat. Photograph taken facing north.

Photo Location 5. Representative view of mixed early successional/second growth deciduous forest. Photograph taken facing south.

Photo Location 6. Representative view of residential lawn habitat. Photograph taken facing west.

Photo Location 7. Representative view of old field habitat. Photograph taken facing north.

Photo Location 8. Representative view of industrial habitat. Photograph taken facing south.

Photo Location 9. Representative view of new field habitat. Photograph taken facing east.

Photo Location 10. Representative view of potential roost tree (PRT) within Project Area. Photograph taken facing northwest.

Photo Location 11. Representative view of existing paved road within Project Area. Photograph taken facing north.

Photo Location 12. Representative view of existing gravel access road within Project Area. Photograph taken facing southeast.

Photo Location 13. Representative view of agricultural field. Photograph taken facing northeast.

Photo Location 14. Representative view of pasture. Photograph taken facing north.

Photo Location 15. Representative view of pasture. Photograph taken facing west.

Photo Location 16. Representative view of second growth coniferous forest. Photograph taken facing south.

Appendix D Data Forms

D.1 WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site:	Seaman - Adams 138 kV Transmission Line Rebuild Project	Stantec Project #:	193704860	Date:	12/13/16
Applicant:	American Electric Power			County:	Adams
Investigator #1:	Aaron Kwolek	Investigator #2:	Dan Schepis	State:	OH
Soil Unit:		NWI/WWI Classification:		Wetland ID:	N/A
Landform:	Side slope	Local Relief:	Convex	Sample Point:	**SP 1**
Slope (%):	25%	Latitude: 38.94623	Longitude: -83.543649	Datum: NAD83	Community ID: UPL
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			☑ Yes ☐ No	Section:	N/A
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?		Are normal circumstances present?		Township:	N/A
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?		☑ Yes ☐ No		Range:	N/A Dir:

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes ☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Hill side wet area during rainfall with cattle grazing creating vegetated hummucks.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☐

Primary:
- ☑ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B14 - True Aquatic Plants
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	0.5	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:		(in.)
Saturation Present?	☐ Yes ☑ No	Depth:		(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks: Surface water due to rainfall on 12/12/16 and 12/13/16.

SOILS

Map Unit Name: Series Drainage Class:

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	3	--	10YR 4/3	100	--	--	--	--	clay loam
3	7	--	10YR 5/3	100	--	--	--	--	clay
7	15	--	10YR 5/1	100	--	--	--	--	clay
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): ☐
- ☐ 1- Histosol
- ☐ 2 - Histic Epipedon
- ☐ 3 - Black Histic
- ☐ 4 - Hydrogen Sulfide
- ☐ 5 - Stratified Layers
- ☐ 10 - 2 cm Muck (LRR N)
- ☐ 11 - Depleted Below Dark Surface
- ☐ 12 - Thick Dark Surface
- ☐ 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148)
- ☐ 4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface
- ☐ S8 - Polyvalue Below Dark Surface (MLRA 147, 148)
- ☐ S9 - Thin Dark Surface (MLRA 147, 148)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matirx
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions
- ☐ F12 - Iron-Manganese Masses (LRR N, M
- ☐ F13 - Umbric Surface (MLRA 122, 136)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 1
- ☐ F21 - Red Parent Material (MLRA 127, 147)

Indicators for Problematic Soils [1]
- ☐ A10 - 2cm Muck (MLRA 147)
- ☐ A16 - Coast Prairie Redox (MLRA 147, 148)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 136, 147)
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: NA Depth: NA

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site: Seaman - Adams 138 kV Transmission Line Rebuild Project | Wetland ID: N/A | Sample Point: **SP 1**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 5 ft radius)

1.	*Daucus carota*	5	N	UPL
2.	*Festuca arundinacea*	36	Y	UPL
3.	*Cirsium arvense*	3	N	FACU
4.	*Juniperus virginiana*	4	N	FACU
5.	*Setaria glabra*	30	Y	UPL
6	*Cyperus strigosus*	5	N	FACW
7.	*Carex frankii*	15	N	OBL
8.	*Solidago altissima*	2	N	FACU
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	100		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	15	x 1 =	15
FACW spp.	5	x 2 =	10
FAC spp.	0	x 3 =	0
FACU spp.	9	x 4 =	36
UPL spp.	71	x 5 =	355
Total	100 (A)		416 (B)

Prevalence Index = B/A = ***4.160***

Hydrophytic Vegetation Indicators:

- Yes ☐ ☐ No — Rapid Test for Hydrophytic Vegetation
- Yes ☐ ☑ No — Dominance Test is > 50%
- Yes ☐ ☑ No — Prevalence Index is ≤ 3.0 *
- Yes ☐ ☐ No — Morphological Adaptations (Explain) *
- Yes ☐ ☐ No — Problem 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. (7.6cm) 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. 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 ☐ Yes ☑ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site:	Seaman - Adams 138 kV Transmission Line Rebuild Project	Stantec Project #:	193704860
Applicant:	American Electric Power		
Investigator #1:	Bruce Jones	Investigator #2:	Kate Bomar
Soil Unit:	Opequon silty clay loam 20-40 percent slopes	NWI/WWI Classification:	PUB
Landform:	Depression	Local Relief:	Concave
Slope (%):	5	Latitude: 38.95467	Longitude: -83.469890 Datum: NAD83

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

Are Vegetation ☐, Soil ☑ or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐ or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	12/13/16
County:	Adams
State:	Ohio
Wetland ID:	Wetland 1
Sample Point:	SP 2
Community ID:	PEM
Section:	
Township:	
Range:	Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☑ Yes ☐ No
Hydric Soils Present? ☐ Yes ☑ No
Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks: No hydric soil where sampled, but signs of periodic inundation around fringe of perminantly inundated; wetland appears to have been excavated and original native soil and topsoil absent signifiying previously distrbances

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☐

Primary:
- ☑ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☑ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☑ B7 - Inundation Visible on Aerial Imagery
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B14 - True Aquatic Plants
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	12	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	N/A	(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	6	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

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

Remarks: Clay soils preclude water table evidence

SOILS

Map Unit Name: Opequon silty clay loam 20-40 percent slopes — Series Drainage Class: moderately well drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	14	1	10YR 5/4	100	10YR 6/8	30	C	M	clay loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): ☑

- ☐ 1- Histosol
- ☐ 2 - Histic Epipedon
- ☐ 3 - Black Histic
- ☐ 4 - Hydrogen Sulfide
- ☐ 5 - Stratified Layers
- ☐ 10 - 2 cm Muck (LRR N)
- ☐ 11 - Depleted Below Dark Surface
- ☐ 12 - Thick Dark Surface
- ☐ 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148)
- ☐ 4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface
- ☐ S8 - Polyvalue Below Dark Surface (MLRA 147, 148)
- ☐ S9 - Thin Dark Surface (MLRA 147, 148)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matirx
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions
- ☐ F12 - Iron-Manganese Masses (LRR N, M
- ☐ F13 - Umbric Surface (MLRA 122, 136)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 1
- ☐ F21 - Red Parent Material (MLRA 127, 147)

Indicators for Problematic Soils [1]
- ☐ A10 - 2cm Muck (MLRA 147)
- ☐ A16 - Coast Prairie Redox (MLRA 147, 148)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 136, 147)
- ☐ TF12 - Very Shallow Dark Surface
- ☑ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: Depth:

Hydric Soil Present? ☐ Yes ☑ No

Remarks: Hydric soil not present at fringe, but evidence of inundation and hydrophytic vegetation next to perminantly inundated depression. Original soil is absent due to excavation

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site: Seaman - Adams 138 kV Transmission Line Rebuild Project Wetland ID: Wetland 1 Sample Point: **SP 2**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 5 ft radius)

1.	*Typha latifolia*	5	N	OBL
2.	*Juncus effusus*	2	N	FACW
3.	*Eleocharis engelmannii*	80	Y	FACW
4.	*Alisma subcordatum*	2	N	OBL
5.	--	--	--	--
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	89		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	7	x 1 =	7
FACW spp.	82	x 2 =	164
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	89 (A)		171 (B)

Prevalence Index = B/A = ***1.921***

Hydrophytic Vegetation Indicators:

- Yes ☑ ☐ No — Rapid Test for Hydrophytic Vegetation
- Yes ☑ ☐ No — Dominance Test is > 50%
- Yes ☑ ☐ No — Prevalence Index is ≤ 3.0 *
- Yes ☐ ☑ No — Morphological Adaptations (Explain) *
- Yes ☐ ☑ No — Problem 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. (7.6cm) 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. 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 ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site:	Seaman - Adams 138Kv Transmission Line Rebuild Project	Stantec Project #:	193704860
Applicant:	American Electric Power		
Investigator #1:	Bruce Jones	Investigator #2:	Kate Bomar
Soil Unit:	Jessup silt loam 0-8% slopes	NWI/WWI Classification:	PUB
Landform:	Pasture	Local Relief:	Linear
Slope (%):	5	Latitude: 38.95467	Longitude: -83.469890 Datum: NAD83

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed?
Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	12/13/16
County:	Adams
State:	Ohio
Wetland ID:	Wetland 1
Sample Point:	SP 3
Community ID:	UPLAND
Section:	
Township:	
Range:	Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes ☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes ☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present): ☑

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B14 - True Aquatic Plants
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth: --	(in.)
Water Table Present?	☐ Yes ☑ No	Depth: --	(in.)
Saturation Present?	☐ Yes ☑ No	Depth: --	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

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

Remarks: Clay soils preclude water table evidence

SOILS

Map Unit Name: Jessup silt loam 0-8% slopes — Series Drainage Class: moderately well drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	3	1	10YR 4/4	100	--	--	--	--	clay
3	14	2	10YR 5/4	100	10YR 6/8	40	C	M	clay
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present): ☑
- ☐ 1- Histosol
- ☐ 2 - Histic Epipedon
- ☐ 3 - Black Histic
- ☐ 4 - Hydrogen Sulfide
- ☐ 5 - Stratified Layers
- ☐ 10 - 2 cm Muck (LRR N)
- ☐ 11 - Depleted Below Dark Surface
- ☐ 12 - Thick Dark Surface
- ☐ 1 - Sandy Muck Mineral (LRR N, MLRA 147, 148)
- ☐ 4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface
- ☐ S8 - Polyvalue Below Dark Surface (MLRA 147, 148)
- ☐ S9 - Thin Dark Surface (MLRA 147, 148)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matirx
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions
- ☐ F12 - Iron-Manganese Masses (LRR N, M
- ☐ F13 - Umbric Surface (MLRA 122, 136)
- ☐ F19 - Piedmont Floodplain Soils (MLRA
- ☐ F21 - Red Parent Material (MLRA 127, 147)

Indicators for Problematic Soils [1]
- ☐ A10 - 2cm Muck (MLRA 147)
- ☐ A16 - Coast Prairie Redox (MLRA 147, 148)
- ☐ F19 - Piedmont Floodplain Soils (MLRA 136, 147)
- ☐ TF12 - Very Shallow Dark Surface
- ☑ Other (Explain in Remarks)

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

Restrictive Layer (If Observed) Type: Depth:

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

WETLAND DETERMINATION DATA FORM
Eastern Mountains and Piedmont Region

Project/Site: Seaman - Adams 138Kv Transmission Line Rebuild Project | Wetland ID: Wetland 1 | Sample Point: **SP 3**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 5 ft radius)

1.	*Andropogon virginicus*	50	Y	FACU
2.	*Plantago lanceolata*	10	N	UPL
3.	*Carex vulpinoidea*	10	N	FACW
4.	*Poa pratensis*	30	Y	FACU
5.	--	--	--	--
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	100		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	10	x 2 =	20
FAC spp.	0	x 3 =	0
FACU spp.	80	x 4 =	320
UPL spp.	10	x 5 =	50
Total	100 (A)		390 (B)

Prevalence Index = B/A = ***3.900***

Hydrophytic Vegetation Indicators:

- Yes ☑ ☐ No — Rapid Test for Hydrophytic Vegetation
- Yes ☑ ☐ No — Dominance Test is > 50%
- Yes ☑ ☐ No — Prevalence Index is ≤ 3.0 *
- Yes ☐ ☑ No — Morphological Adaptations (Explain) *
- Yes ☐ ☑ No — Problem 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. (7.6cm) 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. 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 ☐ Yes ☑ No

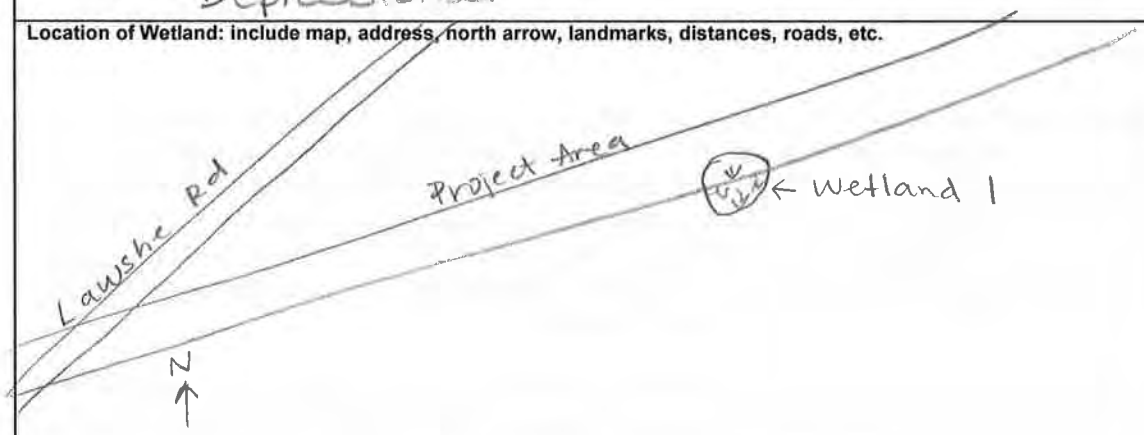
Additional Remarks:

D.2 ORAM DATA FORMS

Background Information

Name:	Bruce Jones
Date:	12/13/16
Affiliation:	Stantec
Address:	11687 Ubanon Rd. Cincinnati, OH 45206
Phone Number:	513-842-8200
e-mail address:	Bruce.Jones@stantec.com
Name of Wetland:	Wetland 1
Vegetation Communit(ies):	PEM
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



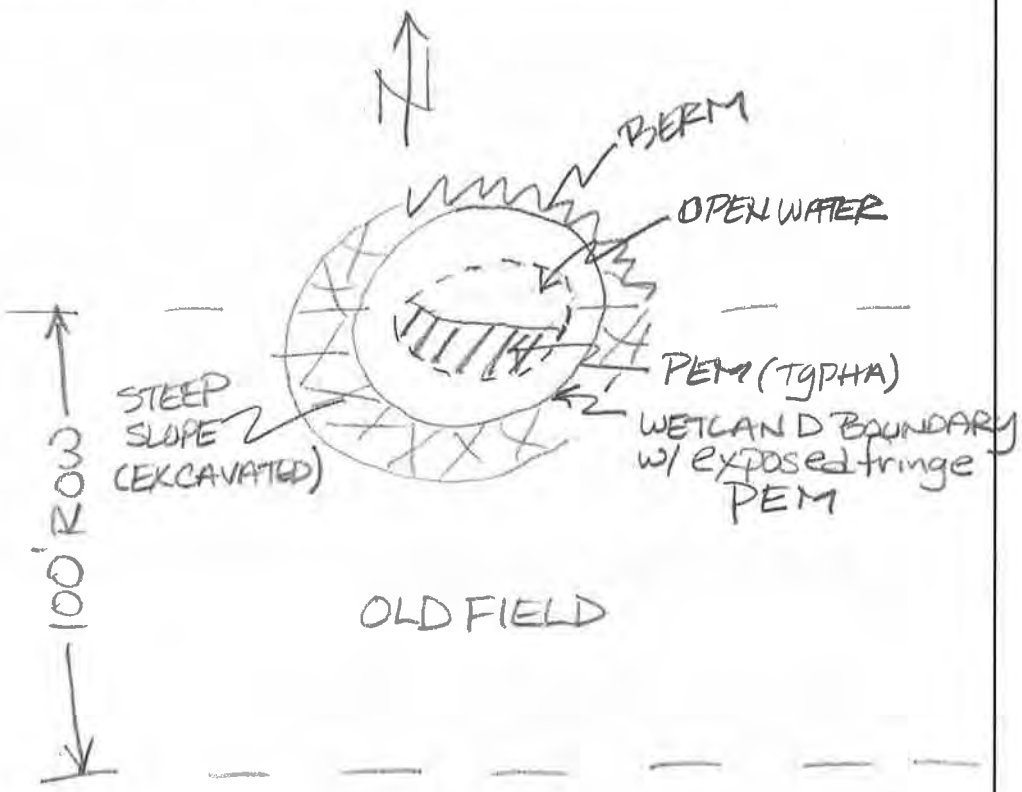
Lat/Long or UTM Coordinate	38.954673, -83.469890
USGS Quad Name	PEEBLES
County	ADAMS
Township	N/A
Section and Subsection	N/A
Hydrologic Unit Code	05060002
Site Visit	12/13/2016
National Wetland Inventory Map	Y
Ohio Wetland Inventory Map	N/A
Soil Survey	Y. Jessup silt loam 1-8% slope
Delineation report/map	See Ecological Resources Inventory Report

BJKB20160213 WØ2

Name of Wetland: Wetland 1

Wetland Size (acres, hectares): ~0.04 acres

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

Depressional wetland apparently excavated with berm on northeast corner. Permanently inundated depression with non-inundated wetland fringe.

Final score : 28	**Category:** 1

Wetland 1

Scoring Boundary Worksheet

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

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

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

BSKB20161213 WØZ

Wetland 1

Narrative Rating

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

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

Wetland 1

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

BJKB20161213 WP2
wetland 1

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

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

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland 1	Rater(s): BJ KB	Date: 12 13 2016

Metric 1. Wetland Area (size).

max 6 pts. | subtotal: 0 | 0

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.

max 14 pts. | subtotal: 4 | 4

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

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

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

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrub land, 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.

max 30 pts. | subtotal: 12 | 16

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

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

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

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

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 8 | 24

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

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

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

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

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

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

Check all disturbances observed

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

subtotal this page: 24

last revised 1 February 2001 jjm

BJKB20161213W02

ORAM v. 5.0 Field Form Quantitative Rating

Site: Wetland 1	Rater(s): BJ | KB	Date: 12 | 13 | 16

24
subtotal first page

Metric 5. Special Wetlands.

0 (max 10 pts) | 24 (subtotal)

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

0

Metric 6. Plant communities, interspersion, microtopography.

3 (max 20 pts) | 28 (subtotal)

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

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

0

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

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

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

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

1

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

- [0] Vegetated hummucks/tussucks
- [2] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [2] Amphibian breeding pools

2

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

28

End of Quantitative Rating. Complete Categorization Worksheets.

Wetland 1

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES (NO)	If yes, Category 3.
	Question 4. Significant bird habitat	YES (NO)	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6. Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3.
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	4	
	TOTAL SCORE	28	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

BJKB20161213 wet2
wetland 1

Wetland Categorization Worksheet

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

Final Category

Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

D.3 HHEI/QHEI DATA FORMS

AKDS20161213534

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 42

SITE NAME/LOCATION Seaman - Adams 138kv Transmission Line Rebuild Project

Project SITE NUMBER Stream 1 RIVER BASIN Ohio DRAINAGE AREA (mi^2) <1mi2

LENGTH OF STREAM REACH (ft) 200 LAT. 38.9459 LONG. 83.5491 RIVER CODE _____ RIVER MILE _____

DATE 12/13/16 SCORER AJK COMMENTS _____

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

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

Channelized by road

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☐	SILT [3 pt]	10
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pt]	10	☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]	5	☒	CLAY or HARDPAN [0 pt]	50
☐	GRAVEL (2-64 mm) [9 pts]	5	☐	MUCK [0 pts]	
☒	SAND (<2 mm) [6 pts]	20	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15 (A) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

(B) 6

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 12

A + B

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 9

Pool Depth Max = 30: 15

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters):

Bankfull Width Max=30: 15

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☒	☒	None	☒	☒	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

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

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

COMMENTS Ert, recent Rain

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

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

STREAM GRADIENT ESTIMATE

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

June 28, 2008 Revision

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: West Branch Ohio Brush Creek 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: Seaman NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Adams Township / City: Seaman

MISCELLANEOUS

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

Photograph Information: _____

Elevated Turbidity? (Y/N): Y Canopy (% open): ~50

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: Cattle access

BIOTIC EVALUATION

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

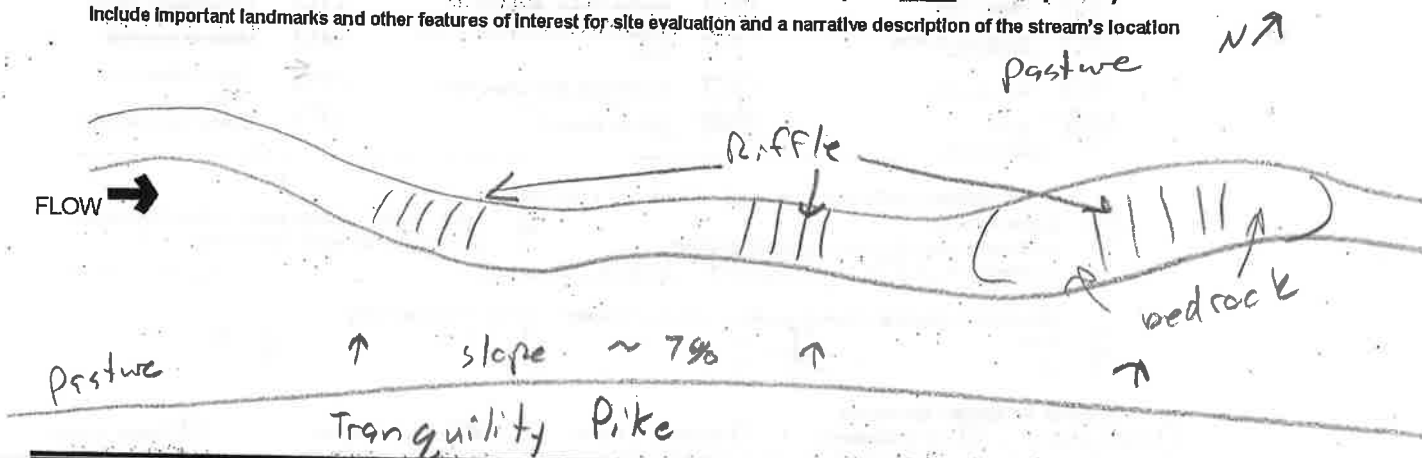
Fish Observed? (Y/N)____ Voucher? (Y/N)____ Salamanders Observed? (Y/N)____ Voucher? (Y/N)____

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

Comments Regarding Biology: none observed

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

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



Stream (Intermittent)

Field Methods for Evaluating Primary Headwater Streams in Ohio
Ohio EPA, Division of Surface Water

Version 4.0
October 2018

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) 62

SITE NAME/LOCATION Sammon-Adams 138kV T-Line Rebuild Adams Co.
SITE NUMBER Stream1 RIVER BASIN Ohio River RIVER CODE ____ DRAINAGE AREA (mi²) <1 sq. mi
LENGTH OF STREAM REACH (ft) 200 LAT 38.941101°N LONG -83.048946°W RIVER MILE ____
DATE 8/3/2020 SCORER NTN COMMENTS ____

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS (16 pts)	10	☐	SILT (3 pt)	10
☐	BOULDER (>256 mm) (16 pts)		☐	LEAF PACK/WOODY DEBRIS (3 pts)	
☐	BEDROCK (16 pts)	10	☐	FINE DETRITUS (3 pts)	
☒	COBBLE (65-256 mm) (12 pts)	30	☐	CLAY or HARDPAN (0 pt)	
☒	GRAVEL (2-64 mm) (9 pts)	30	☐	MUCK (0 pts)	
☐	SAND (<2 mm) (6 pts)	20	☐	ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 50 (A) 21 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (B) 6 TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 27 — A + B

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 9cm

Pool Depth Max = 30: 15

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

☐ > 4.0 meters (> 13') [30 pts]	☐ > 1.0 m - 1.5 m (> 3'3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ ≤ 1.0 m (≤ 3'3") [5 pts]
☒ > 1.5 m - 3.0 m (> 4' 6" - 9' 7") [20 pts]	

COMMENTS OHWM: 6' BF: 8' AVERAGE BANKFULL WIDTH (meters): 7.5

Bankfull Width Max=30: 20

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☒	☒	Wide >10m	☒	☒	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☒	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

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

☐ Stream Flowing	☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (interstitial)	☐ Dry channel, no water (ephemeral)

COMMENTS Intermittent

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 m/km ft) ☐ Flat to Moderate ☐ Moderate (2 m/km ft) ☒ Moderate to Severe ☐ Severe (10 m/km ft)

Stream 1 (Intermittent)

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: West Branch Dry Brush Creek 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: Seaman NRCS Soil Map Page: / NRCS Soil Map Stream Order: /

County: Adams Co Township/City: Seaman

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 8/2/20 Quantity: 0.33"

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 10%

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): /

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

Is the sampling reach representative of the stream (Y/N) N If not, explain: Stream is ephemeral Upstream / out of woods

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

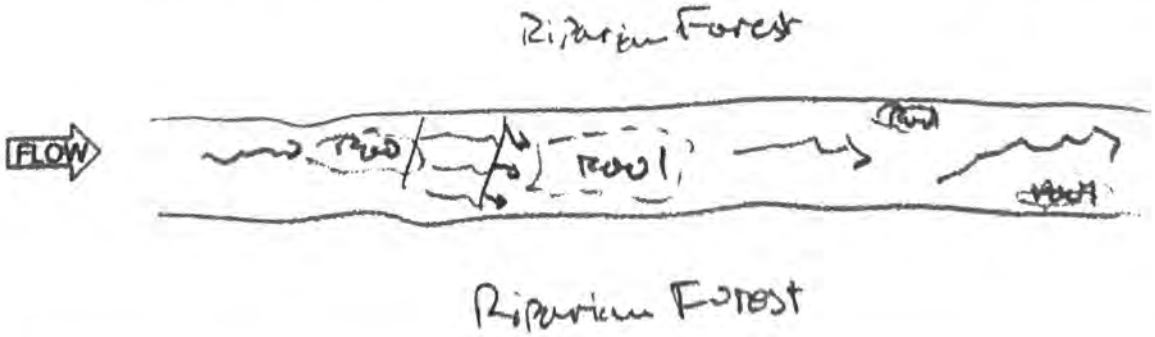
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: None (Isolated Pools)

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



AKMD20170328502

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Seaman -Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 2 RIVER BASIN Ohio DRAINAGE AREA (mi^2) < 1 mi^2

LENGTH OF STREAM REACH (ft) 31 LAT. 38.9447 LONG. -83.5507 RIVER CODE / RIVER MILE /

DATE 3/28/17 SCORER AJK COMMENTS

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 straightened in lawn

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	20	☒☐	ARTIFICIAL [3 pts] concrete slabs	40

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____ (A) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

(B) 4

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 6 — A + B

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 7.5

Pool Depth Max = 30: 15

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters): 1

Bankfull Width Max=30: 5

This information must also be completed

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

L	R	RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	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 ____

oH= 1'

ToB= 3'

↑ToB=0.8'

Pool = 0.5'

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 Eph, recent rain

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: Ohio Brush creek 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: Peebles NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Adams Township / City: Peebles

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 3/26/17 Quantity: 0.61"

Photograph Information: _____

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

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

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

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

Additional comments/description of pollution impacts: cattle access upstream

BIOTIC EVALUATION

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

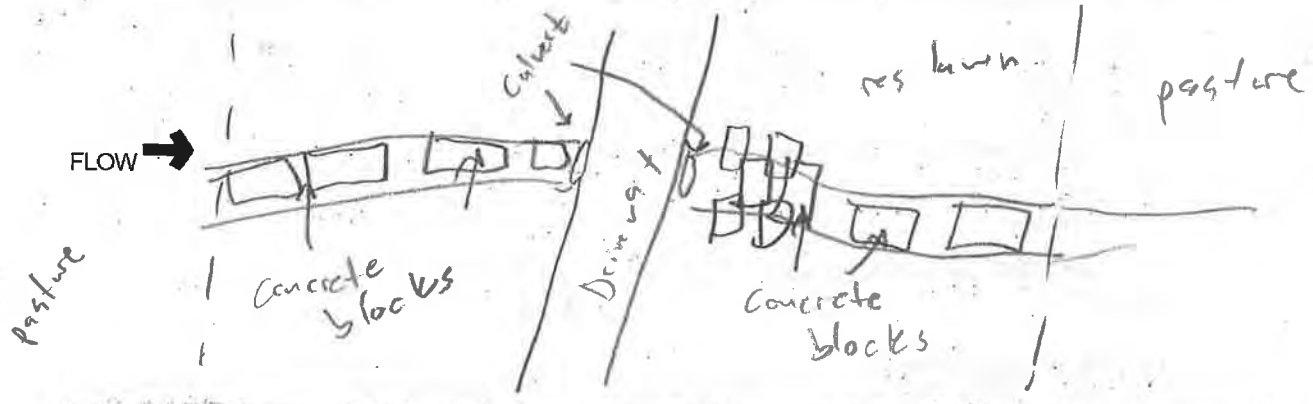
Fish Observed? (Y/N)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: none, ephemera (

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



AKDS 20161213535

Ohio EPA — Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 51

Stream & Location: Stream 3 (West Branch Ohio Brush Creek): Seaman-Adams RM: ___ Date: 12/13/06

138 kV Transmission Line Rebuild Project Scorers Full Name & Affiliation: A. Kvolek / Stantec

River Code: ___ STORET #: ___ Lat./Long.: 38.9467 / 83.5347 (NAD 83 - decimal °) Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☒ BLDR /SLABS [10]	✓		☐ HARDPAN [4]	✓	
☐ BOULDER [9]			☐ DETRITUS [3]	✓	
☐ COBBLE [8]	✓		☐ MUCK [2]		
☒ GRAVEL [7]	✓		☐ SILT [2]	✓	
☐ SAND [6]	✓		☐ ARTIFICIAL [0]		
☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Check ONE (Or 2 & average)

ORIGIN
- ☐ LIMESTONE [1]
- ☒ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☒ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

QUALITY
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

SILT / EMBEDDEDNESS

Comments

Substrate: 16 (Maximum 20)

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

1 UNDERCUT BANKS [1]	___ POOLS > 70cm [2]	___ OXBOWS, BACKWATERS [1]
___ OVERHANGING VEGETATION [1]	___ ROOTWADS [1]	___ AQUATIC MACROPHYTES [1]
___ SHALLOWS (IN SLOW WATER) [1]	1 BOULDERS [1]	___ LOGS OR WOODY DEBRIS [1]
___ ROOTMATS [1]		

AMOUNT Check ONE (Or 2 & average)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☐ SPARSE 5-<25% [3]
- ☒ NEARLY ABSENT <5% [1]

Comments: no H_2O

Cover Maximum 20: 2

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☒ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☒ FAIR [3]
- ☐ POOR [1]

CHANNELIZATION
- ☒ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Comments

Channel Maximum 20: 13

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION (L / R)
- ☐ ☐ NONE / LITTLE [3]
- ☒ ☒ MODERATE [2]
- ☐ ☐ HEAVY / SEVERE [1]

RIPARIAN WIDTH (L / R)
- ☐ ☐ WIDE > 50m [4]
- ☒ ☒ MODERATE 10-50m [3]
- ☐ ☐ NARROW 5-10m [2]
- ☐ ☐ VERY NARROW < 5m [1]
- ☐ ☐ NONE [0]

FLOOD PLAIN QUALITY (L / R)
- ☒ ☒ FOREST, SWAMP [3]
- ☐ ☐ SHRUB OR OLD FIELD [2]
- ☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐ ☐ FENCED PASTURE [1]
- ☐ ☐ OPEN PASTURE, ROWCROP [0]

- ☐ ☐ CONSERVATION TILLAGE [1]
- ☐ ☐ URBAN OR INDUSTRIAL [0]
- ☐ ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10: 8

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH Check ONE (ONLY!)
- ☐ > 1m [6]
- ☒ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH Check ONE (Or 2 & average)
- ☒ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH > RIFFLE WIDTH [0]

CURRENT VELOCITY Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☐ MODERATE [1]
- ☐ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Comments: none, no H_2O

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool / Current Maximum 12: 6

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). ☒ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

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

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8: 0

6] GRADIENT (27.1 ft/mi)

DRAINAGE AREA (67.3 mi²)
- ☐ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☒ HIGH - VERY HIGH [10-6]

%POOL: 6 %GLIDE: 0 %RUN: 0 %RIFFLE: 0

no H_2O

Gradient Maximum 10: 6

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☑ WADE
- ☐ L. LINE
- ☐ OTHER

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

61 meters

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☑ 10%-<30%
- ☐ <10%- CLOSED

STAGE

1st -sample pass- 2nd

- ☐ HIGH ☐
- ☐ UP ☐
- ☐ NORMAL ☐
- ☐ LOW ☐
- ☑ DRY ☑

CLARITY

1st --sample pass-- 2nd

- ☐ < 20 cm ☐
- ☐ 20-<40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☑ SECCHI DEPTH ☑

1st 0 cm

2nd 0 cm

no H_2O

C] RECREATION

POOL: AREA ☐ >100ft² DEPTH ☐ >3ft

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

D] MAINTENANCE

Circle some & COMMENT

retaining wall

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

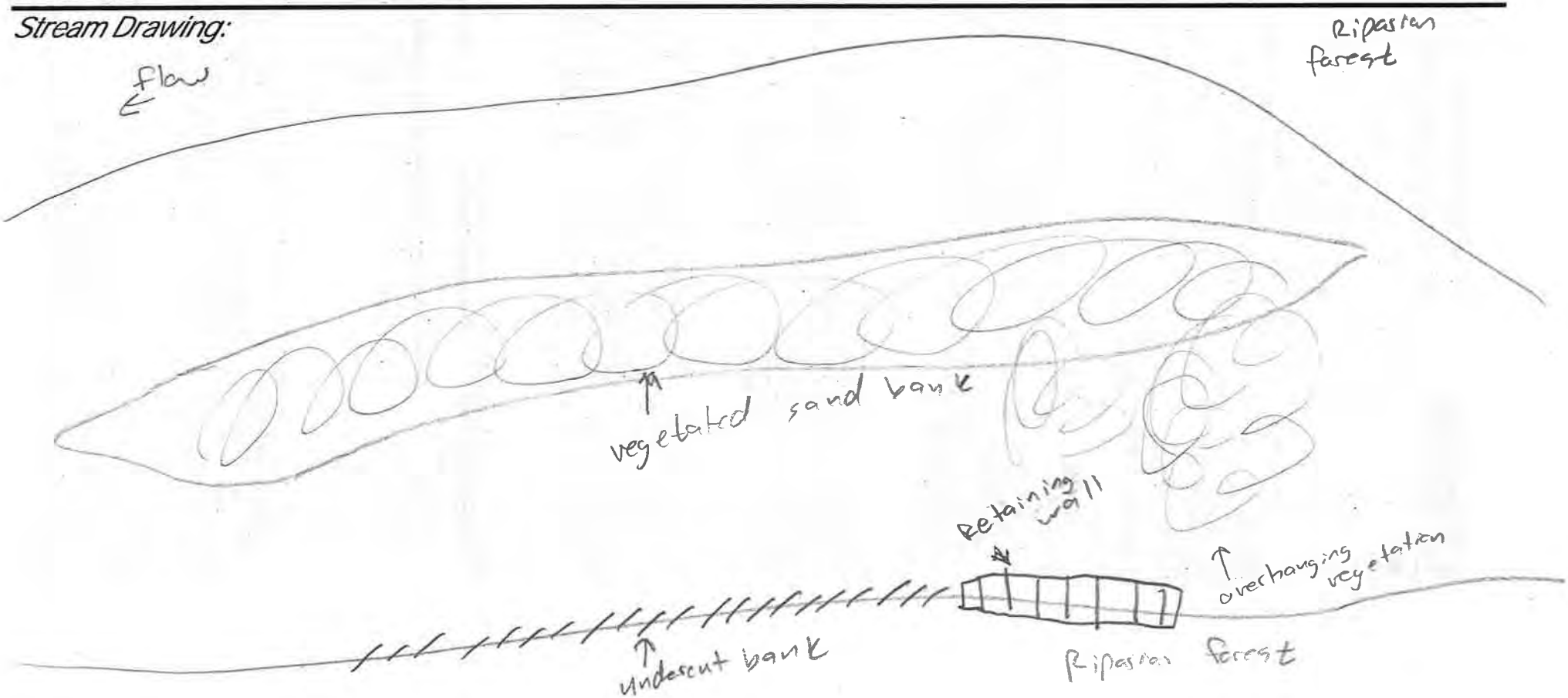
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



AKDS20161213 S 36

Ohio EPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 51

Stream & Location: Stream 4 (West Branch Ohio Brush Creek) Seaman-Adams 138kV Transmission Line Rebuild Project

Date: 12/13/06

Scorers Full Name & Affiliation:

River Code: ___ - ___ - ___ STORET #: ___ Lat./Long.: 38.9468 / 83.5339 (NAD 83 - decimal °) Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR /SLABS [10]	x		☐☐ HARDPAN [4]	x	
☐☐ BOULDER [9]			☐☐ DETRITUS [3]	x	
☐☐ COBBLE [8]	x		☐☐ MUCK [2]		
☐☐ GRAVEL [7]	x		☐☐ SILT [2]	x	
☐☐ SAND [6]	x		☐☐ ARTIFICIAL [0]		
☐☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☐ 3 or less [0]

Check ONE (Or 2 & average)

ORIGIN: ☐ LIMESTONE [1] ☒ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☒ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

QUALITY: ☐ HEAVY [-2] ☒ MODERATE [-1] ☐ NORMAL [0] ☐ FREE [1] ☐ EXTENSIVE [-2] ☒ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

SILT / EMBEDDEDNESS

Substrate: 16 (Maximum 20)

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

1 UNDERCUT BANKS [1]	___ POOLS > 70cm [2]	___ OXBOWS, BACKWATERS [1]
___ OVERHANGING VEGETATION [1]	___ ROOTWADS [1]	___ AQUATIC MACROPHYTES [1]
___ SHALLOWS (IN SLOW WATER) [1]	1 BOULDERS [1]	1 LOGS OR WOODY DEBRIS [1]
___ ROOTMATS [1]		

AMOUNT — Check ONE (Or 2 & average)
☐ EXTENSIVE >75% [11] ☐ MODERATE 25-75% [7] ☐ SPARSE 5-<25% [3] ☒ NEARLY ABSENT <5% [1]

Comments: no H_2O

Cover Maximum 20: 3

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☒ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☒ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel Maximum 20: 13

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION (L / R)	RIPARIAN WIDTH (L / R)	FLOOD PLAIN QUALITY (L / R)	
☐☐ NONE / LITTLE [3]	☐☐ WIDE > 50m [4]	☒☐ FOREST, SWAMP [3]	☐☐ CONSERVATION TILLAGE [1]
☐☐ MODERATE [2]	☒☒ MODERATE 10-50m [3]	☐☐ SHRUB OR OLD FIELD [2]	☐☐ URBAN OR INDUSTRIAL [0]
☒☐ HEAVY / SEVERE [1]	☐☐ NARROW 5-10m [2]	☐☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐☐ MINING / CONSTRUCTION [0]
	☐☐ VERY NARROW < 5m [1]	☐☐ FENCED PASTURE [1]	
	☐☐ NONE [0]	☐☐ OPEN PASTURE, ROWCROP [0]	

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10: 7

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH — Check ONE (ONLY!)
☐ > 1m [6] ☒ 0.7-<1m [4] ☐ 0.4-<0.7m [2] ☐ 0.2-<0.4m [1] ☐ < 0.2m [0]

CHANNEL WIDTH — Check ONE (Or 2 & average)
☒ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH > RIFFLE WIDTH [0]

CURRENT VELOCITY — Check ALL that apply
☐ TORRENTIAL [-1] ☐ SLOW [1] ☐ VERY FAST [1] ☐ INTERSTITIAL [-1] ☐ FAST [1] ☐ INTERMITTENT [-2] ☐ MODERATE [1] ☐ EDDIES [1]
Indicate for reach - pools and riffles.

Recreation Potential: Primary Contact / Secondary Contact (circle one and comment on back)

no H_2O

Comments

Pool / Current Maximum 12: 6

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). ☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2]	☐ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0] ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8: 0

6] GRADIENT (27.1 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☒ HIGH - VERY HIGH [10-6]

DRAINAGE AREA (67.3 mi²)

no H_2O

%POOL: 0 %GLIDE: 0 %RUN: 0 %RIFFLE: 0

Gradient Maximum 10: 6

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☑ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☐ LOW	☐
☑ DRY	☑

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

61 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☑ SECCHI DEPTH	☐

1st pass 0 cm

2nd 6 cm

CANOPY

- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☑ 10%-<30%
- ☐ <10%- CLOSED

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

POOL: AREA ☐ >100ft² DEPTH ☐ >3ft

D] MAINTENANCE

Circle some & COMMENT

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

retaining wall

E] ISSUES

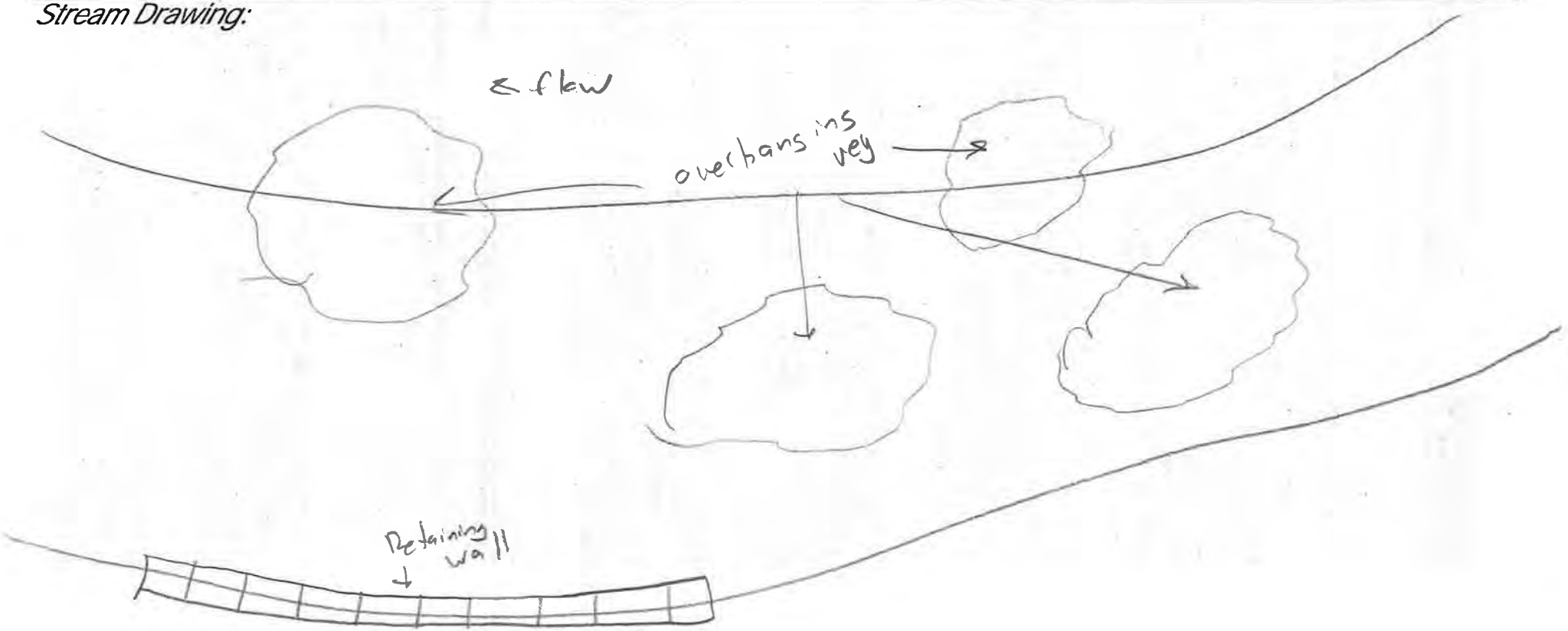
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



AKDS 20161213537

Ohio EPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 64

Stream & Location: Stream 5 (West Branch Ohio Brush Creek) | Seaman-Adams 138kV Transmission Line Rebuild Project RM: ___.__ Date: 12/13/06

Scorers Full Name & Affiliation:

River Code: ___-___-0 STORET #: _____ Lat./Long.: 38.9469 / 83.5321 (NAD 83 - decimal °) Office verified location ☐

1] SUBSTRATE
Check *ONLY* Two substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR /SLABS [10]	x		☐☐ HARDPAN [4]	x	
☐☐ BOULDER [9]			☐☐ DETRITUS [3]	x	
☒☐ COBBLE [8]	x		☐☐ MUCK [2]		
☒☐ GRAVEL [7]	x		☐☐ SILT [2]	x	
☐☐ SAND [6]	x		☐☐ ARTIFICIAL [0]		
☐☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN: ☐ LIMESTONE [1] ☒ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☒ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

QUALITY: ☐ HEAVY [-2] ☒ MODERATE [-1] ☐ NORMAL [0] ☐ FREE [1] ☐ EXTENSIVE [-2]

SILT ☒ MODERATE [-1] ☐ NORMAL [0]

EMBEDDEDNESS ☐ NONE [1]

Comments

Substrate: 16 (Maximum 20)

2] INSTREAM COVER
Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

___ UNDERCUT BANKS [1]	___ POOLS > 70cm [2]	___ OXBOWS, BACKWATERS [1]	
2 OVERHANGING VEGETATION [1]	___ ROOTWADS [1]	___ AQUATIC MACROPHYTES [1]	
___ SHALLOWS (IN SLOW WATER) [1]	___ BOULDERS [1]	1 LOGS OR WOODY DEBRIS [1]	
___ ROOTMATS [1]			

AMOUNT (Check ONE (*Or 2 & average*))
☐ EXTENSIVE >75% [11] ☐ MODERATE 25-75% [7] ☒ SPARSE 5-<25% [3] ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20: 5

3] CHANNEL MORPHOLOGY
Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☒ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☒ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel Maximum 20: 15

4] BANK EROSION AND RIPARIAN ZONE
Check ONE in each category for *EACH BANK* (*Or 2 per bank & average*)
River right looking downstream

EROSION (L R)	RIPARIAN WIDTH (L R)	FLOOD PLAIN QUALITY (L R)	
☐ ☒ NONE / LITTLE [3]	☐ ☒ WIDE > 50m [4]	☐ ☒ FOREST, SWAMP [3]	☐ ☐ CONSERVATION TILLAGE [1]
☒ ☐ MODERATE [2]	☐ ☐ MODERATE 10-50m [3]	☐ ☐ SHRUB OR OLD FIELD [2]	☐ ☐ URBAN OR INDUSTRIAL [0]
☐ ☐ HEAVY / SEVERE [1]	☐ ☐ NARROW 5-10m [2]	☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐ ☐ MINING / CONSTRUCTION [0]
	☒ ☐ VERY NARROW < 5m [1]	☒ ☐ FENCED PASTURE [1]	
	☐ ☐ NONE [0]	☐ ☐ OPEN PASTURE, ROWCROP [0]	

Indicate predominant land use(s) past 100m riparian.

2.5 (L) 25 (R) 2

Comments

Riparian Maximum 10: 7

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH (Check ONE (*ONLY!*))
☒ > 1m [6] ☐ 0.7-<1m [4] ☐ 0.4-<0.7m [2] ☐ 0.2-<0.4m [1] ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (*Or 2 & average*))
☒ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH > RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)
☐ TORRENTIAL [-1] ☐ SLOW [1] ☐ VERY FAST [1] ☐ INTERSTITIAL [-1] ☒ FAST [1] ☐ INTERMITTENT [-2] ☐ MODERATE [1] ☐ EDDIES [1]
Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current Maximum 12: 9

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: (Check ONE (*Or 2 & average*)). ☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☒ BEST AREAS > 10cm [2]	☒ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☒ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☐ MODERATE [0] ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8: 6

6] GRADIENT (27.1 ft/mi)
☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☒ HIGH - VERY HIGH [10-6]

DRAINAGE AREA (167.3 mi²)

%POOL: 0 %GLIDE: 0 %RUN: 85 %RIFFLE: 15

Gradient Maximum 10: 6

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☑ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☑ UP	☑
☐ NORMAL	☐
☐ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☑ OTHER 6 meters

CLARITY

1st --sample pass--	2nd
☑ < 20 cm	☑
☐ 20-<40 cm	☐
☐ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

CANOPY

- ☐ >85%- OPEN
- ☑ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd _____ cm

C] RECREATION POOL: AREA ☐ >100ft² DEPTH ☐ >3ft

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

no Maintenance

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM N/A
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

D] MAINTENANCE Circle some & COMMENT

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES N/A

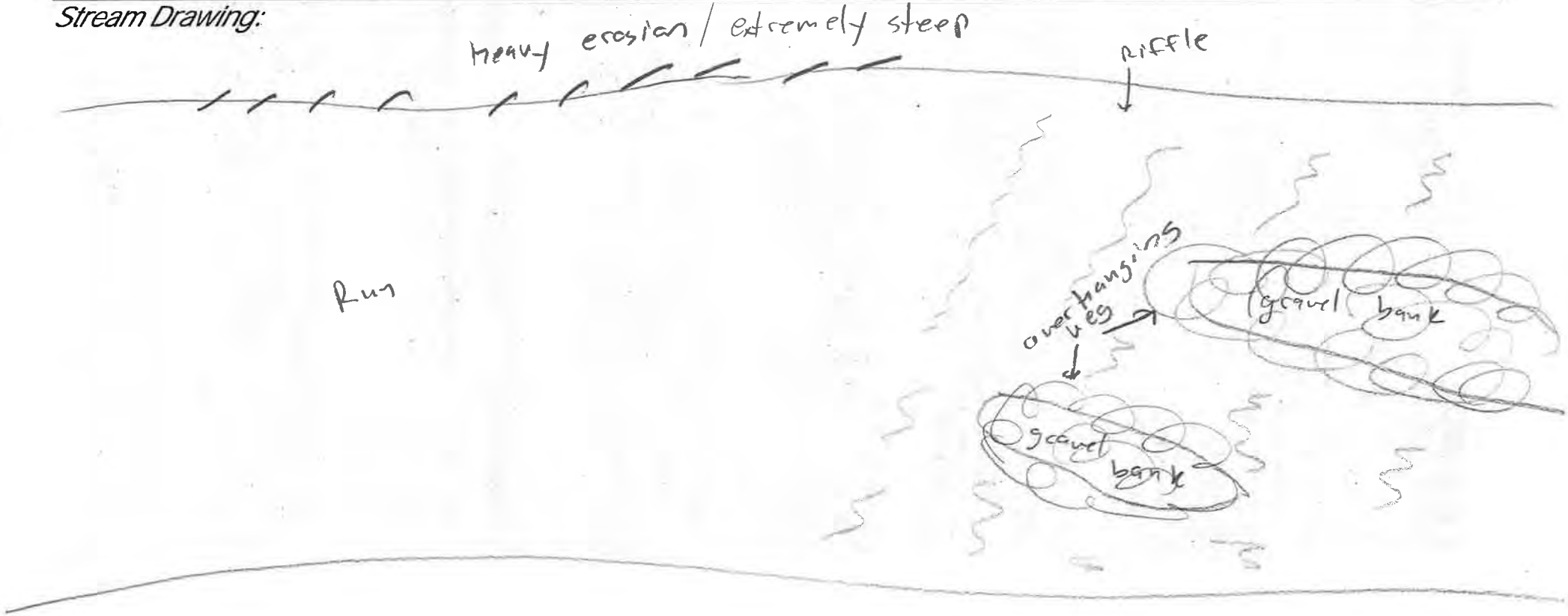
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



EPAm 20161213 518

Ohio EPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 83

Stream & Location: Stream 6 (Georges Creek) Seaman-Adams 138 kV Transmission Line Rebuild Project **RM:** ___ **Date:** 12/13/06

Scorers Full Name & Affiliation: Eric Parker / A.MEDIS

River Code: ___ **STORET #:** ___ **Lat./Long.:** (NAD 83 - decimal °) 38.949096 / 83.512825 **Office verified location** ☐

1] SUBSTRATE

Check *ONLY* Two substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☒ ☒ BLDR /SLABS [10]		60	☐ ☐ HARDPAN [4]		
☒ ☒ BOULDER [9]		20	☐ ☐ DETRITUS [3]		5
☐ ☐ COBBLE [8]	5	5	☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]	5		☐ ☐ SILT [2]		
☐ ☐ SAND [6]			☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☒ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☐ HEAVY [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ☒ FREE [1]
- ☐ EXTENSIVE [-2]
- ☐ MODERATE [-1]
- ☒ NORMAL [0]
- ☐ NONE [1]

Substrate 20 (Maximum 20)

Comments

2] INSTREAM COVER

Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

1 UNDERCUT BANKS [1]	1 POOLS > 70cm [2]	2 OXBOWS, BACKWATERS [1]
2 OVERHANGING VEGETATION [1]	1 ROOTWADS [1]	___ AQUATIC MACROPHYTES [1]
2 SHALLOWS (IN SLOW WATER) [1]	3 BOULDERS [1]	2 LOGS OR WOODY DEBRIS [1]
0 ROOTMATS [1]		

AMOUNT Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☒ MODERATE 25-75% [7]
- ☐ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Cover 16 (Maximum 20)

Comments

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☒ LOW [2]
- ☐ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☒ GOOD [5]
- ☐ FAIR [3]
- ☐ POOR [1]

CHANNELIZATION
- ☒ NONE [6]
- ☐ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Channel 15 (Maximum 20)

Comments

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for ***EACH BANK*** (*Or 2 per bank & average*)

River right looking downstream

EROSION (L / R)
- ☒ ☐ NONE / LITTLE [3]
- ☐ ☒ MODERATE [2] (2.5)
- ☐ ☐ HEAVY / SEVERE [1]

RIPARIAN WIDTH (L / R)
- ☒ ☒ WIDE > 50m [4]
- ☐ ☐ MODERATE 10-50m [3]
- ☐ ☐ NARROW 5-10m [2]
- ☐ ☐ VERY NARROW < 5m [1]
- ☐ ☐ NONE [0]

FLOOD PLAIN QUALITY (L / R) → 2.5
- ☒ ☒ FOREST, SWAMP [3]
- ☒ ☒ SHRUB OR OLD FIELD [2]
- ☐ ☐ RESIDENTIAL, PARK, NEW FIELD [1]
- ☐ ☐ FENCED PASTURE [1]
- ☐ ☐ OPEN PASTURE, ROWCROP [0]
- ☐ ☐ CONSERVATION TILLAGE [1]
- ☐ ☐ URBAN OR INDUSTRIAL [0]
- ☐ ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Riparian 9 (Maximum 10)

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH Check **ONE** (*ONLY!*)
- ☐ > 1m [6]
- ☒ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH Check ONE (*Or 2 & average*)
- ☒ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH > RIFFLE WIDTH [0]

CURRENT VELOCITY Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☒ FAST [1]
- ☒ MODERATE [1]
- ☒ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Pool / Current 8 (Maximum 12)

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: ☐ NO RIFFLE [metric=0]

Check ONE (*Or 2 & average*).

RIFFLE DEPTH
- ☒ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☒ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

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

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☒ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Riffle / Run 7 (Maximum 8)

Comments

6] GRADIENT

(37.5 ft/mi) ☐ VERY LOW - LOW [2-4] ☒ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]

DRAINAGE AREA (7.44 mi²)

%POOL: 15 %GLIDE: 40 %RUN: 25 %RIFFLE: 20

Gradient 8 (Maximum 10)

A] SAMPLED REACH

Check ALL that apply

METHOD
- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☒ OTHER

STAGE (1st -sample pass- 2nd)
- ☐ HIGH ☐
- ☒ UP ☐
- ☐ NORMAL ☐
- ☐ LOW ☐
- ☐ DRY ☐

DISTANCE
- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☒ 0.12 Km
- ☐ OTHER

meters

CLARITY (1st --sample pass-- 2nd)
- ☐ < 20 cm ☐
- ☐ 20-<40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY
- ☐ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☒ 10%-<30%
- ☐ <10%- CLOSED

pass: 1st _____ cm; 2nd _____ cm

C] RECREATION AREA DEPTH
POOL: ☐ >100ft² ☐ >3ft

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Recent rain

B] AESTHETICS
- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

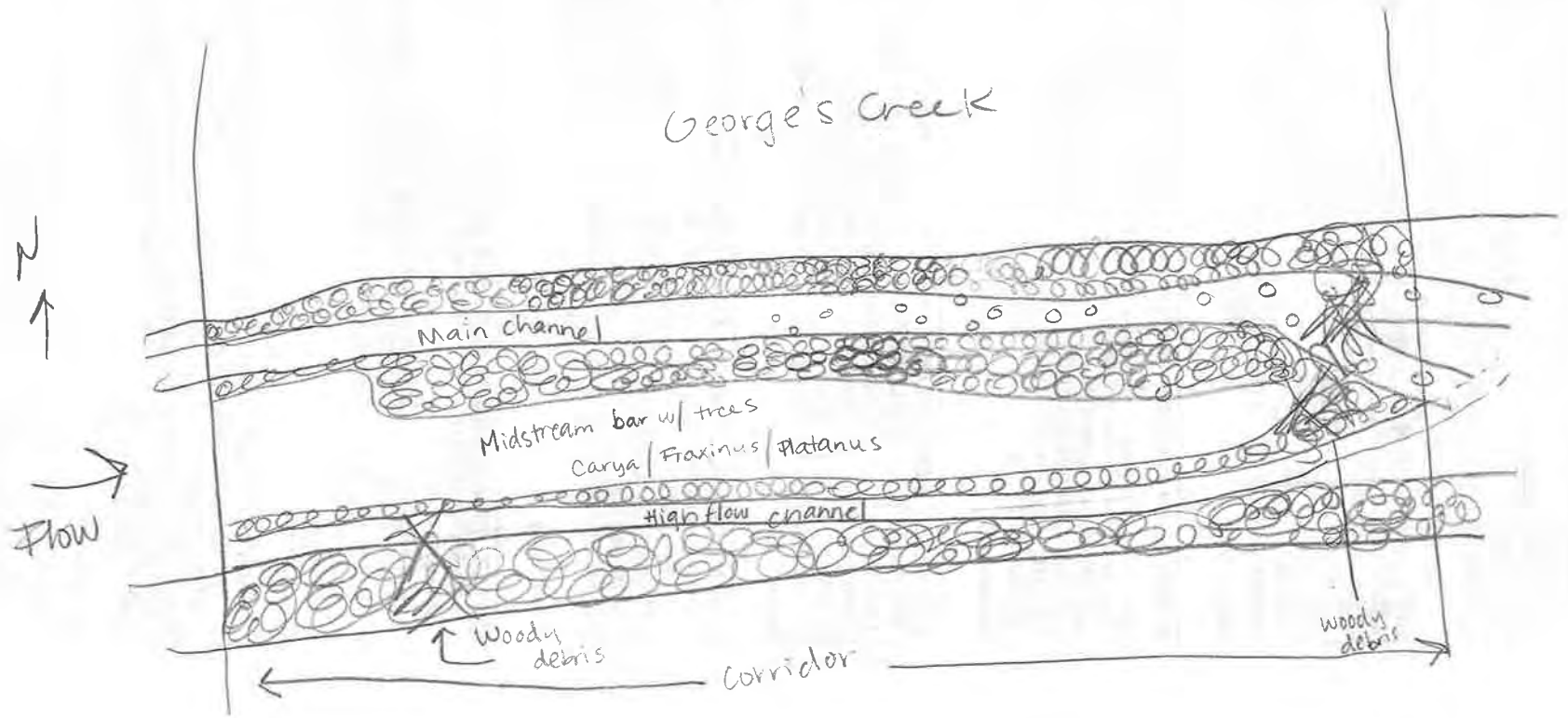
E] ISSUES

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS
- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



EPAM20161213517

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 83

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 7 RIVER BASIN Ohio DRAINAGE AREA (mi²) 40.1mi²

LENGTH OF STREAM REACH (ft) 200 LAT. 38.949505 LONG. -83.509565 RIVER CODE ___ RIVER MILE ___

DATE 12/13/16 SCORER EP COMMENTS ___

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☒ ☒	BLDR SLABS [16 pts]	30	☐ ☐	SILT [3 pt]	
☒ ☐	BOULDER (>256 mm) [16 pts]	5	☒ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	20
☒ ☐	BEDROCK [16 pt]	15	☐ ☐	FINE DETRITUS [3 pts]	
☒ ☒	COBBLE (65-256 mm) [12 pts]	30	☐ ☐	CLAY or HARDPAN [0 pt]	
☐ ☐	GRAVEL (2-64 mm) [9 pts]		☐ ☐	MUCK [0 pts]	
☐ ☐	SAND (<2 mm) [6 pts]		☐ ☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 80 (A) 28 (B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 33

A + B

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

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

COMMENTS ___ MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 30

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

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

COMMENTS ___ AVERAGE BANKFULL WIDTH (meters): 2.5

Bankfull Width Max=30: 20

This information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	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 ___

OHWM Width 8' Depth 0.75'

TOB Width 12' Depth 1.5'

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 Likely intermittent Stream

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: Ohio-Brush Creek 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: Peebles NRCS Soil Map Page: / NRCS Soil Map Stream Order /

County: Adams Township / City: Peebles

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/12/16 Quantity: 0.08"

Photograph Information: P32 upstream downstream

Elevated Turbidity? (Y/N): Y Canopy (% open): 80

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)

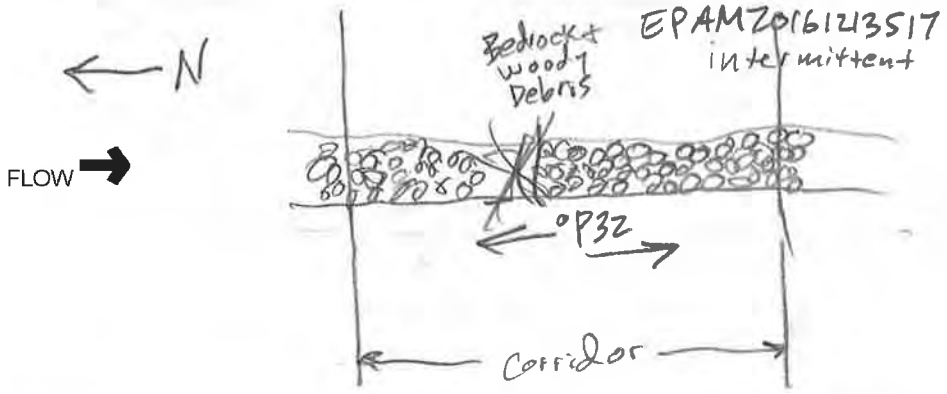
Fish Observed? (Y/N)____ Voucher? (Y/N)____ Salamanders Observed? (Y/N)____ Voucher? (Y/N)____

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

Comments Regarding Biology: _____

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

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



EPAM20161213516

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 88

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 8 RIVER BASIN Ohio DRAINAGE AREA (mi^2) < 0.1 mi^2

LENGTH OF STREAM REACH (ft) 200 LAT. 38.950222 LONG. -83.503871 RIVER CODE / RIVER MILE /

DATE 12/13/16 SCORER Eric Parker COMMENTS

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

old pasture cleared of mature trees in ROW

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

TYPE		PERCENT	TYPE		PERCENT
☒	BLDR SLABS [16 pts]	10	☐	SILT [3 pt]	
☒	BOULDER (>256 mm) [16 pts]	25	☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☒	BEDROCK [16 pt]	20	☐	FINE DETRITUS [3 pts]	
☒	COBBLE (65-256 mm) [12 pts]	25	☒	CLAY or HARDPAN [0 pt]	20
☐	GRAVEL (2-64 mm) [9 pts]		☐	MUCK [0 pt]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 80 (A) 28 (B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 33

A + B

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

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

25

COMMENTS MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 30

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

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

3.2

COMMENTS AVERAGE BANKFULL WIDTH (meters)

Bankfull Width Max=30: 25

This information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	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

OHWM width 5' depth 1.5'

TOB width 10' depth 3.5'

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 likely intermittent stream

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: Ohio-Brush Creek 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: Peebles NRCS Soil Map Page: / NRCS Soil Map Stream Order /

County: Adams Township / City: Peebles

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/12/2016 Quantity: 0.08"

Photograph Information: P31 upstream - downstream

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

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC 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)

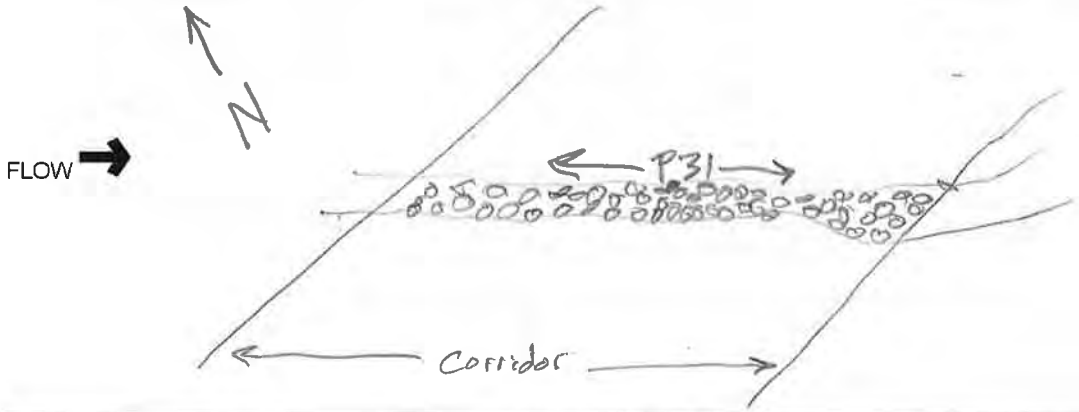
Fish Observed? (Y/N)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: _____

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

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



EPAM 20161213515

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 59

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project
SITE NUMBER Stream 9 RIVER BASIN Ohio DRAINAGE AREA (mi²) _____
LENGTH OF STREAM REACH (ft) 200 LAT. 38.951482 LONG. -83.49346 RIVER CODE ___ RIVER MILE ___
DATE 12/13/16 SCORER EPAM COMMENTS _____

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pts]	20
☒	BOULDER (>256 mm) [16 pts]	20	☒	LEAF PACK/WOODY DEBRIS [3 pts]	30
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☒	COBBLE (65-256 mm) [12 pts]	30	☐	CLAY or HARDPAN [0 pt]	
☐	GRAVEL (2-64 mm) [9 pts]		☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 50 (A) 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

(B) 4

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points
Substrate Max = 40: 19
A + B

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 25

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): 1.2

Bankfull Width Max=30: 15

This information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☒	☒	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

OHWM
Width 3.5'
Depth 0.6'

TOB
Width 4.5'
Depth 1.0'

June 20, 2008 Revision

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: Ohio - Brush Creek 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: Peebles NRCS Soil Map Page: 1 NRCS Soil Map Stream Order 1

County: Adams Township / City: Peebles

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/12/16 Quantity: 0.09"

Photograph Information: P30 upstream downstream

Elevated Turbidity? (Y/N): Y Canopy (% open): 50

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: except it's more open canopy

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)

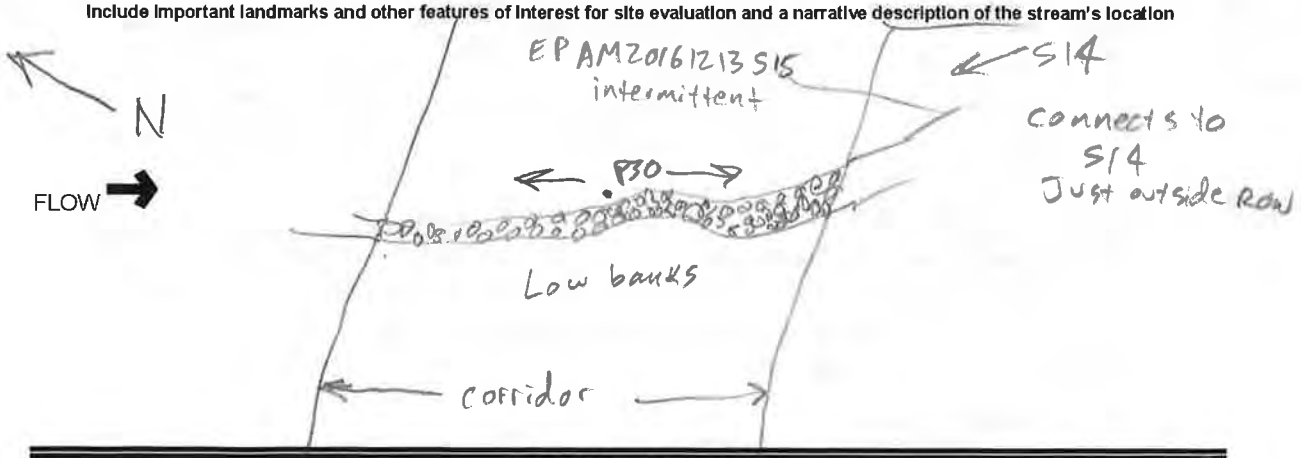
Fish Observed? (Y/N)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: _____

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

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



EPAM20161213514

"Big Run" Creek

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 83

SITE NAME/LOCATION: Seaman-Adams 138kV Transmission Line Rebuild Project

Big Run SITE NUMBER Stream 10 RIVER BASIN Ohio DRAINAGE AREA (mi²) 0.92mi²

LENGTH OF STREAM REACH (ft) 200 LAT. 38.951538 LONG. -83.493174 RIVER CODE ____ RIVER MILE ____

DATE 12/13/16 SCORER EPA M COMMENTS ____

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

2-track road ford - south of corridor

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

TYPE		PERCENT	TYPE		PERCENT
☒	BLDR SLABS [16 pts]	25	☐	SILT [3 pt]	
☒	BOULDER (>256 mm) [16 pts]	20	☒	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☒	COBBLE (65-256 mm) [12 pts]	25	☐	CLAY or HARDPAN [0 pt]	
☒	GRAVEL (2-64 mm) [9 pts]		☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]	20	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 70 (A) 28 (B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 33

A + B

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 36

Pool Depth Max = 30: 20

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

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

COMMENTS channel split in row - causing width to be skewed up AVERAGE BANKFULL WIDTH (meters): 12

Bankfull Width Max=30: 30

This information must also be completed

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

RIPARIAN WIDTH (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 ____

OHWM width 38' Depth 2'

TOB width 45' Depth 3'

Sneezeweed in bloom

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

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

COMMENTS ____

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: Ohio - Brush Creek 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: Peebles NRCS Soil Map Page: / NRCS Soil Map Stream Order /

County: Adams Township / City: Peebles

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/12/16 Quantity: 0.08"

Photograph Information: P29 upstream downstream

Elevated Turbidity? (Y/N): _____ Canopy (% open): 25

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) N If not, please explain:

Stream width in ROW wider than typical Big Run Creek channel

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)

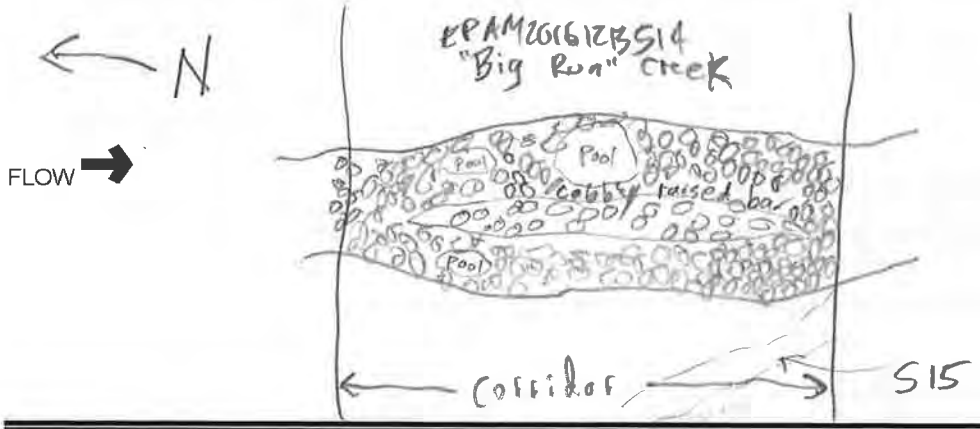
Fish Observed? (Y/N)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: _____

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

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



EPAM 20161213513

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 57

SITE NAME/LOCATION: Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER: Stream 11 RIVER BASIN: Ohio DRAINAGE AREA (mi²): _____

LENGTH OF STREAM REACH (ft): 104 LAT. 38.951735 LONG. -83.491616 RIVER CODE: / RIVER MILE: /

DATE: 12/13/16 SCORER: EP AM COMMENTS: _____

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

2-track road crossing

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

TYPE		PERCENT	TYPE		PERCENT
☒ ☒	BLDR SLABS [16 pts]	25	☐ ☐	SILT [3 pt]	
☒ ☒	BOULDER (>256 mm) [16 pts]	40	☒ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	15
☐ ☐	BEDROCK [16 pts]		☐ ☐	FINE DETRITUS [3 pts]	
☒ ☐	COBBLE (65-256 mm) [12 pts]	15	☐ ☐	CLAY or HARDPAN [0 pt]	
☒ ☐	GRAVEL (2-64 mm) [9 pts]	5	☐ ☐	MUCK [0 pts]	
☐ ☐	SAND (<2 mm) [6 pts]		☐ ☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 80 (A): 32

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

(B): 5 TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 37 (A + B)

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

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

COMMENTS: Moist-Dry channel 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]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☒ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 20

Bankfull Width Max=30: 20

This information must also be completed

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

OHWM width 6' Height 1.0'

TOB width 9' Height 1.5'

RIPARIAN WIDTH L	RIPARIAN WIDTH R	(Per Bank)	FLOODPLAIN QUALITY L	FLOODPLAIN QUALITY R	(Most Predominant per Bank)	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: Food plot / mowed field to right

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

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

COMMENTS: _____

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: Ohio Brush Creek 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: Peebles NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Adams Township / City: Peebles

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/12/16 Quantity: 0.08"

Photograph Information: P28

Elevated Turbidity? (Y/N): N/A Canopy (% open): 50

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)

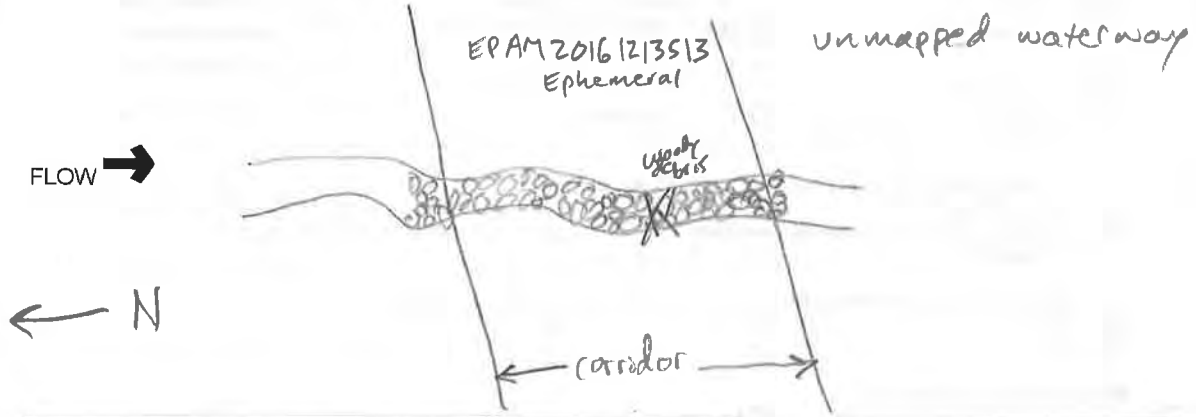
Fish Observed? (Y/N)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: _____

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

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



EPAM20161213512

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 81

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 12 RIVER BASIN Ohio DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) 200 LAT. 38.952348 LONG. -83.487116 RIVER CODE _____ RIVER MILE _____

DATE 12/13/16 SCORER EP AM COMMENTS _____

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☒	BLDR SLABS [16 pts]	20	☒ ☐	SILT [3 pt]	5
☐ ☒	BOULDER (>256 mm) [16 pts]	15	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐ ☒	BEDROCK [16 pt]	30	☐ ☐	FINE DETRITUS [3 pts]	
☐ ☐	COBBLE (65-256 mm) [12 pts]		☒ ☐	CLAY or HARDPAN [0 pt]	30
☐ ☐	GRAVEL (2-64 mm) [9 pts]		☐ ☐	MUCK [0 pts]	
☐ ☐	SAND (<2 mm) [6 pts]		☐ ☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 65 (A) 16 (B) 5

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

HHEI Metric Points

Substrate Max = 40: 21

A + B

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

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

30

COMMENTS _____ **MAXIMUM POOL DEPTH (centimeters):**

Pool Depth Max = 30: 30

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

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

40

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

Bankfull Width Max=30: 30

This Information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☒	☒	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☒	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: Ohio Brush Creek 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: Peebles NRCS Soil Map Page: / NRCS Soil Map Stream Order /

County: Adams Township / City: Peebles

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/13/16 Quantity: 0.08"

Photograph Information: 827 upstream downstream

Elevated Turbidity? (Y/N): Y Canopy (% open): 90 Turbidity is low, but present

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

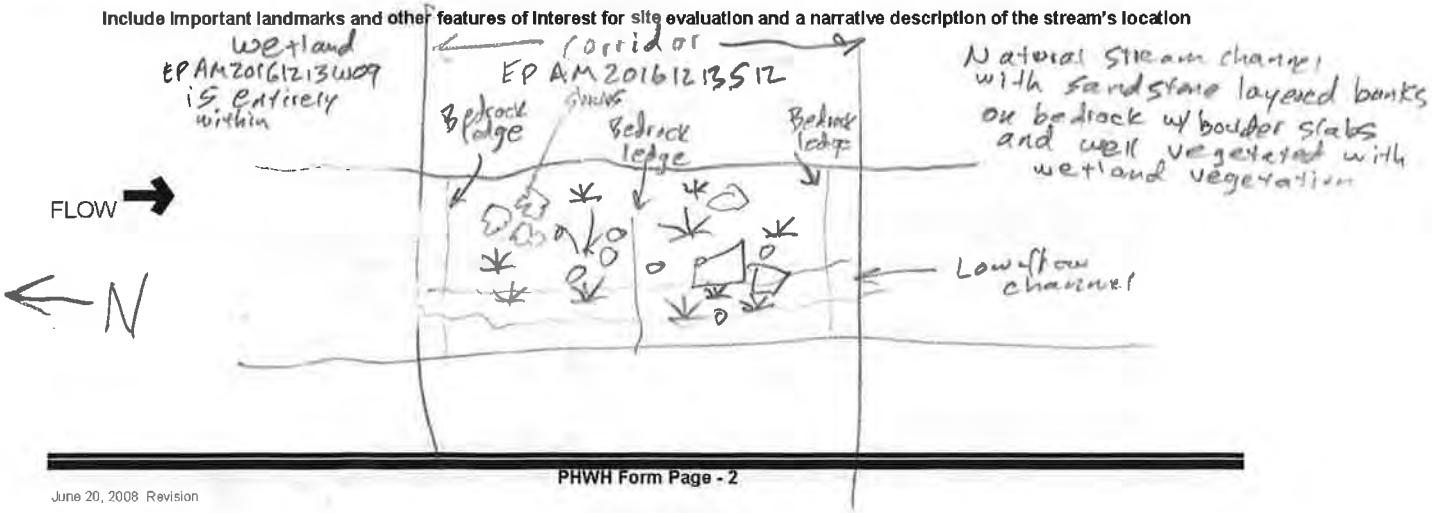
Fish Observed? (Y/N)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: No aquatic organisms observed

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

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



BJKB20161213507

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 46

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 13 RIVER BASIN OHIO RIVER DRAINAGE AREA (mi²) 2.05 mi²

LENGTH OF STREAM REACH (ft) 200 LAT 38.953445 LONG 83.479169 RIVER CODE ____ RIVER MILE ____

DATE 12/13/16 SCORER BEJ COMMENTS ____

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☒ RECENT OR NO RECOVERY

MODIFICATIONS: EXTENSIVE CATTLE GRAZING & EROSION ON BANKS & THROUGH STREAM

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☒☐	CLAY or HARDPAN [0 pt]	85
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5 (A) 3 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 6 (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]

10 → 25

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 25

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

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

3.0 → 15

COMMENTS 2 distinct widths AVERAGE BANKFULL WIDTH (meters)

Bankfull Width Max=30: 15

This Information must also be completed

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

OHWM
W - 7
D - 0.5
TOP BANK
W - 10'
D - 1.5'

RIPARIAN WIDTH (Per Bank) L R	FLOODPLAIN QUALITY (Most Predominant per Bank) L R	L R
☐☐ Wide >10m	☐☐ Mature Forest, Wetland	☐☐ Conservation Tillage
☐☐ Moderate 5-10m	☐☐ Immature Forest, Shrub or Old Field	☐☐ Urban or Industrial
☒☒ Narrow <5m	☐☐ Residential, Park, New Field	☐☐ Open Pasture, Row Crop
☐☐ None	☒☒ Fenced Pasture	☐☐ Mining or Construction

COMMENTS ____

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

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

COMMENTS ____

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: WEST FORK OHIO BRUSH CREEK Distance from Evaluated Stream = 0.8 mi

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: PEEBLES NRCS Soil Map Page: ___ NRCS Soil Map Stream Order ___

County: ADAMS Township (City): LAWSHE

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/13/16 Quantity: 0.01"

Photograph Information: P15

Elevated Turbidity? (Y/N): Y Canopy (% open): 50

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: EXTENSIVE GRAZING / EROSION DAMAGE

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)

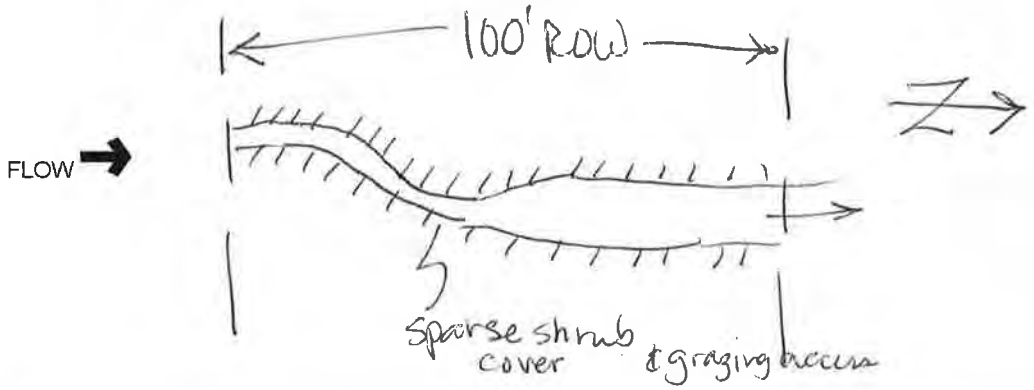
Fish Observed? (Y/N) N Voucher? (Y/N) ~ Salamanders Observed? (Y/N) N Voucher? (Y/N) ~

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

Comments Regarding Biology: _____

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

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



BJKB20161213 S08

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 53

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 14 RIVER BASIN OHIO RIVER DRAINAGE AREA (mi²) <0.5 mi²

LENGTH OF STREAM REACH (ft) 125' LAT. 38.953743 LONG 83.477159 RIVER CODE _____ RIVER MILE _____

DATE 12/13/16 SCORER BCG COMMENTS _____

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY — IN MAINTAINED ROW - BRUSH PUT INTO STREAM

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☒	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 100 (A) 15 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 18 (A + B)

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

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

15 ~~15~~ cut

COMMENTS Difficult to see - full of brush MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 15

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

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

3.0 ~~20~~

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters)

Bankfull Width Max=30: 20

This Information must also be completed

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

RIPARIAN WIDTH L	RIPARIAN WIDTH R	(Per Bank)	FLOODPLAIN QUALITY L	FLOODPLAIN QUALITY R	(Most Predominant per Bank)	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 few shrubs/trees

OHWM. W-5 D-1'

TOP BANK. W-12 D-6'

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: WEST FORK OHIO BRUSH CREEK Distance from Evaluated Stream 20.3 mi

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: PEEBLES NRCS Soil Map Page: ____ NRCS Soil Map Stream Order ____

County: Adams Township / City: LAWSHE

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/13/16 Quantity: 0.01"

Photograph Information: P16

Elevated Turbidity? (Y/N): N Canopy (% open): 90

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) N If not, please explain: maintained ROW

Additional comments/description of pollution impacts: Cut brush thrown into stream channel - which is very incised & eroding

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)

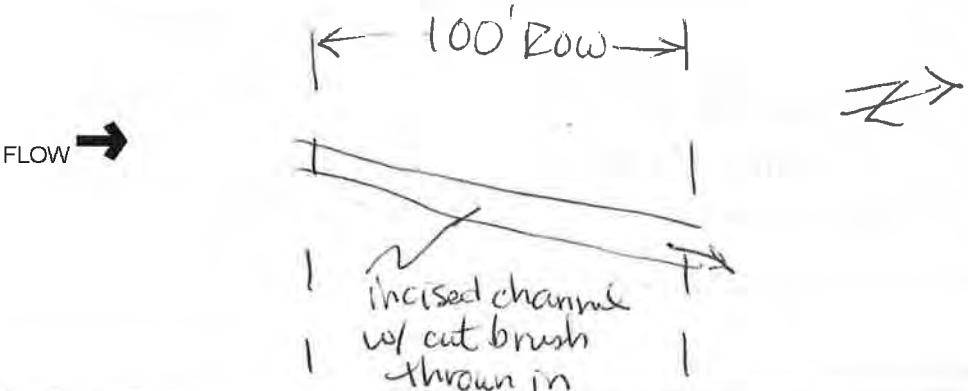
Fish Observed? (Y/N) N Voucher? (Y/N) — Salamanders Observed? (Y/N) N Voucher? (Y/N) —

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

Comments Regarding Biology: _____

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

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



BJKB 20161213 S#9

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 64

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Project

SITE NUMBER Stream 15 RIVER BASIN OHIO RIVER DRAINAGE AREA (mi²) <0.5mi

LENGTH OF STREAM REACH (ft) 125' LAT 38.954504 LONG. 83.471695 RIVER CODE ____ RIVER MILE ____

DATE 12/13/16 SCORER BCJ COMMENTS ____

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☒ RECENT OR NO RECOVERY

MODIFICATIONS: GRAZED PASTURE w/ CATTLE ACCESS & EROSION DAMAGE

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]	5	☐☐	SILT [3 pt]	
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☒	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 (A) 15 (B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 19

A + B

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

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

30

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 30

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

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

5.0 / 15

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters)

Bankfull Width Max=30: 15

This information must also be completed

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

OHWM: W - 3' D - 3'

TOP BANK: W - 20' D - 3.5'

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☒	☒	None	☒	☒	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

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

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

COMMENTS ____

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

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

STREAM GRADIENT ESTIMATE

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

June 20 2008 Revision

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: WEST FORK OHIO BRUSH CREEK Distance from Evaluated Stream 2ϕ.8mi

☐ 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: PEEBLES NRCS Soil Map Page: ___ NRCS Soil Map Stream Order ___

County: Adams Township (City) LAWSHE

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/13/16 Quantity: ϕ.01"

Photograph Information: P17

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

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

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

Is the sampling reach representative of the stream (Y/N) N If not, please explain: Some trees to each side where pasture not in ROW

Additional comments/description of pollution impacts: cattle access/erosion damage

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)

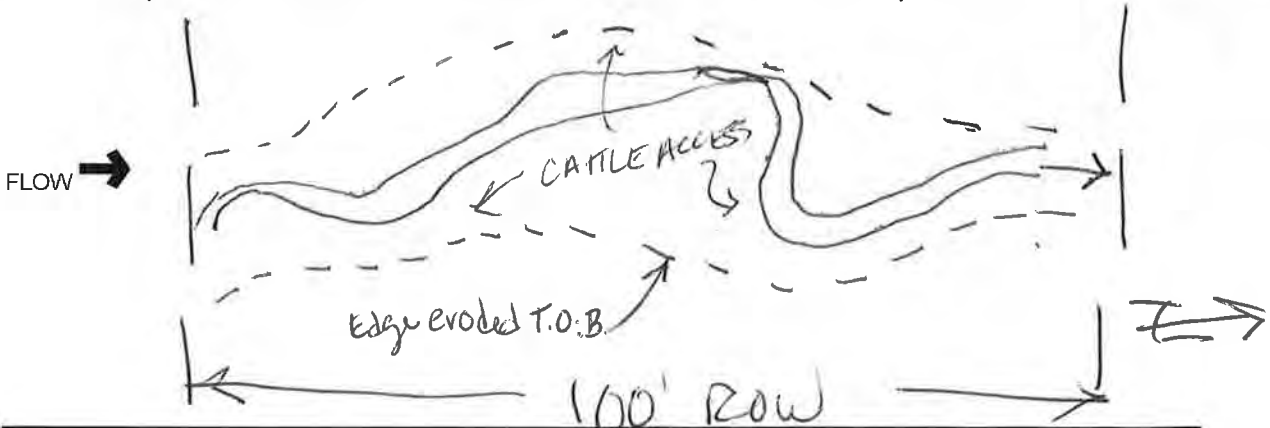
Fish Observed? (Y/N) N Voucher? (Y/N) ___ Salamanders Observed? (Y/N) N Voucher? (Y/N) ___

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

Comments Regarding Biology: ___

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

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



BJKB20161213510

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 21

SITE NAME/LOCATION seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 16 RIVER BASIN OHIO RIVER DRAINAGE AREA (mi²) <0.5mi 2

LENGTH OF STREAM REACH (ft) 110' LAT 38.955131 LONG -83.467300 RIVER CODE ____ RIVER MILE ____

DATE 12/13/16 SCORER BCJ COMMENTS eroded channel - disturbed area

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

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

disturbed - ~~AM~~ surface mining area? (gravel?)

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☐	SILT [3 pt]	
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☒	CLAY or HARDPAN [0 pt]	95
☒	GRAVEL (2-64 mm) [9 pts]	5	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock Ø (A) 9 (B) 2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 11

A + B

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: 5

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

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

Ø.7

COMMENTS incised channel AVERAGE BANKFULL WIDTH (meters)

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☆

OHWM W - 1.5 D - Ø.3

TOP BANK W - 2' D - 1'

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 too sparse of growth

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 UDF above (upstream) 3' deep erosion the intercepted H2O table

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

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

STREAM GRADIENT ESTIMATE

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

June 20 2008 Revision

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: WEST FORK OHIO BRUSH CREEK Distance from Evaluated Stream 0.8 mi

☐ CWH Name: ___ Distance from Evaluated Stream ___

☐ EWH Name: ___ Distance from Evaluated Stream ___

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

USGS Quadrangle Name: PEEBLES NRCS Soil Map Page: ___ NRCS Soil Map Stream Order ___

County: ADAMS Township / City: LAWSHE

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/13/16 Quantity: 0.01"

Photograph Information: P19

Elevated Turbidity? (Y/N): Y Canopy (% open): 98

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: severe erosion & lack of vegetation in surrounding area - looks to be recently surface ~~mined~~ mined

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)

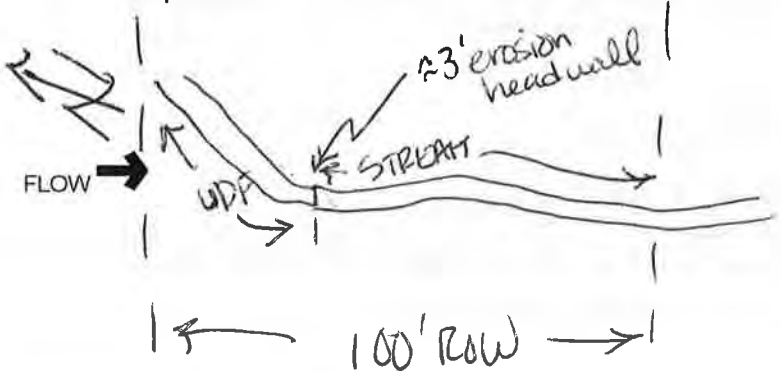
Fish Observed? (Y/N) N Voucher? (Y/N) ___ Salamanders Observed? (Y/N) N Voucher? (Y/N) ___

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

Comments Regarding Biology: ___

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

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



BJKB20161213511

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 80

SITE NAME/LOCATION: Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER: Stream 17 RIVER BASIN: OHIO RIVER DRAINAGE AREA (mi²): <0.5 mi²

LENGTH OF STREAM REACH (ft): 100' LAT: 38.956556 LONG: -82.457804 RIVER CODE: ____ RIVER MILE: ____

DATE: 12/13/16 SCORER: BCJ COMMENTS: ____

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: IN & OUT OF ROW LOOKS SIMILAR

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	10	☐	SILT [3 pt]	
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☒	COBBLE (65-256 mm) [12 pts]	30	☐	CLAY or HARDPAN [0 pt]	
☒	GRAVEL (2-64 mm) [9 pts]	55	☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40 + 85 (A): 21 (B): 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 25

A + B

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

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

30

COMMENTS: MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 30

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

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

3.0 → 25

COMMENTS: AVERAGE BANKFULL WIDTH (meters)

Bankfull Width Max=30: 25

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☒	☒	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☒	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: LEFT BANK PARTIALLY FORESTED

OHWM, W - 10', D - 1'

TOP BANK, W - 10', D - 2'

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

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

COMMENTS: ____

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: WEST FORK OHIO BRUSH CREEK Distance from Evaluated Stream 0.2mi

☐ 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: PEEBLES NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: ADAMS Township / City: LAWSHE

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/13/16 Quantity: 0.01"

Photograph Information: P20

Elevated Turbidity? (Y/N): Y 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: NA

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)

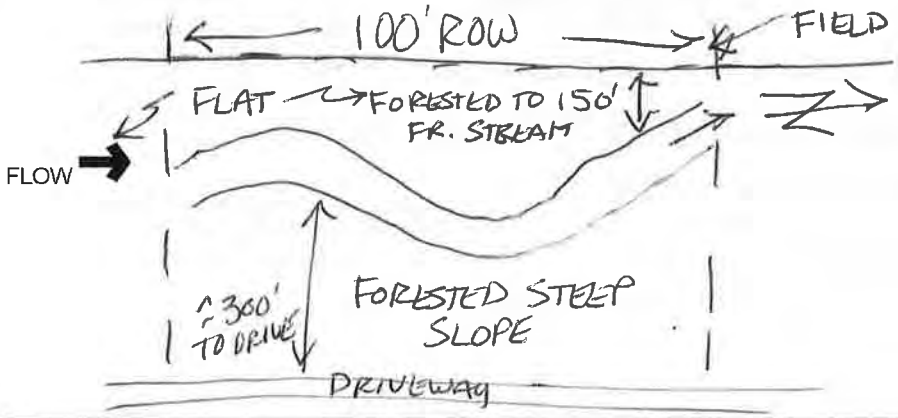
Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) N Voucher? (Y/N) _____

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

Comments Regarding Biology: _____

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

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



BJKB20161213S12

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 15

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project
SITE NUMBER Stream 18 RIVER BASIN OHIO RIVER DRAINAGE AREA (mi²) <0.5mi²
LENGTH OF STREAM REACH (ft) 30' LAT 38957029 LONG -83455261 RIVER CODE ____ RIVER MILE ____
DATE 12/13/16 SCORER BCJ COMMENTS SHORT DEEP GULLY TRIB TO OHIO BRUSH CREEK

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
EROSION FR. ADJACENT FARM CLEAR CUT

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☐	SILT [3 pt]	
☐	BOULDER (>256 mm) [16 pts]		☒	LEAF PACK/WOODY DEBRIS [3 pts]	95
☐	BEDROCK [16 pt]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☒	CLAY or HARDPAN [0 pt]	5
☐	GRAVEL (2-64 mm) [9 pts]		☐	MUCK [0 pts]	
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 3 (B) 2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 5 (A + B)

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

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

COMMENTS MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: 5

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

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

COMMENTS AVERAGE BANKFULL WIDTH (meters): 3.0 ☒

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 L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	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

OHWM, W-4', D-1
TOPBANK W-10', D-8'

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

June 20, 2008 Revision

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: WEST FORK OHIO BRUSH CREEK Distance from Evaluated Stream 30'

☐ 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: PEEBLES NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Adams Township/City: LAWSHE

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/13/16 Quantity: 0.01"

Photograph Information: P21

Elevated Turbidity? (Y/N): NA Canopy (% open): 50

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: ADJACENT HAYFIELD

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)

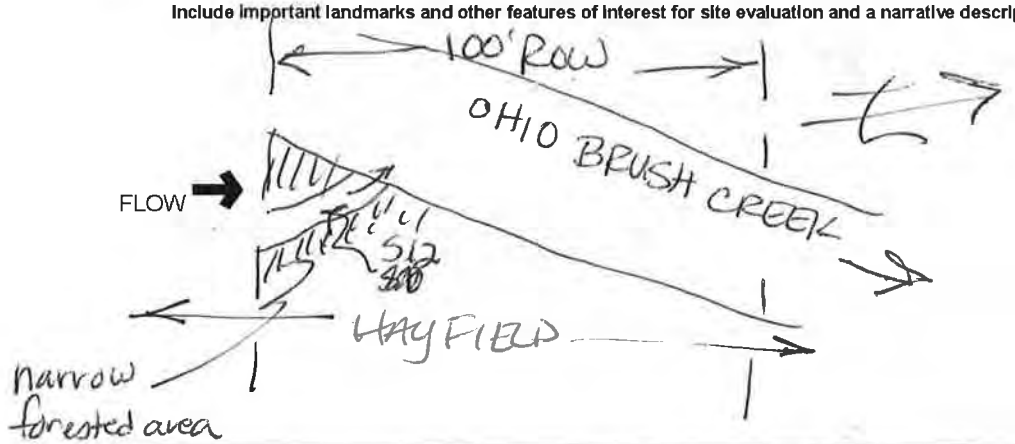
Fish Observed? (Y/N) N Voucher? (Y/N) — Salamanders Observed? (Y/N) N Voucher? (Y/N) —

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

Comments Regarding Biology: —

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

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



BLDM201612 13505

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 100

Stream & Location: Stream 19 (Ohio Brush Creek) Seaman-Adams 138kV Transmission Line Rebuild Project AEP — Date: 12/13/06

Scorers Full Name & Affiliation: Bill Leopold | Kate Bomar - Stantec

River Code: ___-___-___ STORET #: _____ Lat./Long.: (NAD 83 - decimal °) 38.957118 -83.457481 — Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 & average)

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]			☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]	X	X	☒ ☐ SILT [2]	X	X
☐ ☒ SAND [6]	X	X	☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

(Score natural substrates; ignore sludge from point-sources)

ORIGIN	QUALITY	
☒ LIMESTONE [1]	☐ HEAVY [-2]	
☐ TILLS [1]	☒ MODERATE [-1]	
☐ WETLANDS [0]	☐ NORMAL [0]	
☐ HARDPAN [0]	☐ FREE [1]	
☐ SANDSTONE [0]	☐ EXTENSIVE [-2]	
☐ RIP/RAP [0]	☐ MODERATE [-1]	
☐ LACUSTURINE [0]	☐ NORMAL [0]	
☐ SHALE [-1]	☐ NONE [1]	
☐ COAL FINES [-2]		

SILT / EMBEDDEDNESS

Comments: 0 | 1 | -2

Substrate Maximum 20: **7**

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

1 UNDERCUT BANKS [1]	1 POOLS > 70cm [2]	___ OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1]	___ ROOTWADS [1]	___ AQUATIC MACROPHYTES [1]
___ SHALLOWS (IN SLOW WATER) [1]	___ BOULDERS [1]	1 LOGS OR WOODY DEBRIS [1]
___ ROOTMATS [1]		

AMOUNT (Check ONE (Or 2 & average))

- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20: **8**

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☒ GOOD [5]	☒ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments: 2 | 5 | 4 | 2

Channel Maximum 20: **13**

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

River right looking downstream

EROSION (L / R)	RIPARIAN WIDTH (L / R)	FLOOD PLAIN QUALITY (L / R)
☒ ☒ NONE / LITTLE [3]	☐ ☒ WIDE > 50m [4]	☐ ☐ FOREST, SWAMP [3]
☐ ☐ MODERATE [2]	☒ ☐ MODERATE 10-50m [3]	☐ ☒ SHRUB OR OLD FIELD [2]
☐ ☐ HEAVY / SEVERE [1]	☐ ☐ NARROW 5-10m [2]	☒ ☐ RESIDENTIAL, PARK, NEW FIELD [1]
	☐ ☐ VERY NARROW < 5m [1]	☐ ☐ FENCED PASTURE [1]
	☐ ☐ NONE [0]	☐ ☐ OPEN PASTURE, ROWCROP [0]

☐ ☐ CONSERVATION TILLAGE [1]
☐ ☐ URBAN OR INDUSTRIAL [0]
☐ ☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments: 3 | 3.5 | 1.5

Riparian Maximum 10: **8**

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH (Check ONE (ONLY!))

- ☒ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH (Check ONE (Or 2 & average))

- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☒ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH > RIFFLE WIDTH [0]

CURRENT VELOCITY (Check ALL that apply)

- ☐ TORRENTIAL [-1]
- ☐ SLOW [1]
- ☐ VERY FAST [1]
- ☐ INTERSTITIAL [-1]
- ☒ FAST [1]
- ☐ INTERMITTENT [-2]
- ☒ MODERATE [1]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments: 0 | 1 | 2

Pool / Current Maximum 12: **9**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). ☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☒ BEST AREAS > 10cm [2]	☒ MAXIMUM > 50cm [2]	☐ STABLE (e.g., Cobble, Boulder) [2]	☐ NONE [2]
☐ BEST AREAS 5-10cm [1]	☐ MAXIMUM < 50cm [1]	☒ MOD. STABLE (e.g., Large Gravel) [1]	☐ LOW [1]
☐ BEST AREAS < 5cm [metric=0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☒ MODERATE [0] ☐ EXTENSIVE [-1]

Comments: 2 | 2 | 1

Riffle / Run Maximum 8: **5**

6] GRADIENT (8.54 ft/mi) DRAINAGE AREA (401 mi²)

☐ VERY LOW - LOW [2-4]
☐ MODERATE [6-10]
☒ HIGH - VERY HIGH [10-6]

%POOL: 10 %GLIDE: 0
%RUN: 80 %RIFFLE: 10

Gradient Maximum 10: **10**

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☒ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass- 2nd

- ☐ HIGH ☐
- ☐ UP ☐
- ☒ NORMAL ☐
- ☐ LOW ☐
- ☐ DRY ☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☒ OTHER

101 meters

CLARITY

1st --sample pass-- 2nd

- ☐ < 20 cm ☐
- ☐ 20-<40 cm ☐
- ☐ 40-70 cm ☐
- ☐ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

- ☐ > 85%- OPEN
- ☒ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass 2nd _____ cm

2nd _____ cm

C] RECREATION

POOL: AREA ☐ >100ft² DEPTH ☐ >3ft

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

B] AESTHETICS

Circle some & COMMENT

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☒ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

D] MAINTENANCE

Circle some & COMMENT

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

Circle some & COMMENT

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- x̄ width 88 ft
- x̄ depth
- max. depth
- x̄ bankfull width
- bankfull x̄ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:

BLDM20161213504

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 19

SITE NAME/LOCATION Seaman-Adams 138kV Transmission Line Rebuild Project

SITE NUMBER Stream 20 RIVER BASIN Ohio DRAINAGE AREA (mi²) <0.1

LENGTH OF STREAM REACH (ft) 200 LAT 38.957215 LONG -83.454097 RIVER CODE / RIVER MILE 0.1

DATE 10/13/16 SCORER BL 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

BF
2.6'
0.4'
2.0'
0.4'

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]		☒ ☐	SILT [3 pt]	60
☐ ☐	BOULDER (>256 mm) [16 pts]		☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐ ☐	BEDROCK [16 pt]		☐ ☐	FINE DETRITUS [3 pts]	
☐ ☐	COBBLE (65-256 mm) [12 pts]	5	☐ ☐	CLAY or HARDPAN [0 pt]	
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10	☐ ☐	MUCK [0 pts]	
☐ ☒	SAND (<2 mm) [6 pts]	20	☐ ☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5 (A) 9 (B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40: 14

A + B

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

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

COMMENTS MAXIMUM POOL DEPTH (centimeters): 1

Pool Depth Max = 30: 5

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

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

COMMENTS OHW = 1.4' x 0.3', 1.7' x 0.3' AVERAGE BANKFULL WIDTH (meters): 0.7

Bankfull Width Max=30: 0

This Information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☒	☒	Wide >10m	☒	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS

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

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

COMMENTS recent rains

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☒ EWH Name: Ohio Brush Creek Distance from Evaluated Stream 0.1

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

USGS Quadrangle Name: Peebles NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Adams Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 12/12/16 Quantity: 0.4

Photograph Information: 50-up, 51-down

Elevated Turbidity? (Y/N): N Canopy (% open): 90

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: access road, drain tile in floodplain

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)_____ Voucher? (Y/N)_____ Salamanders Observed? (Y/N)_____ Voucher? (Y/N)_____

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

Comments Regarding Biology: None Observed

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

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