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Columbus, OH 43215-2373
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Chairman Thomas W. Johnson
The Public Utilities Commission of Ohio
Ohio Power Siting Board
180 East Broad Street
Columbus, Ohio 43215

April 16, 2014

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**RE: Letter of Notification for the Summerfield – Texas Eastern Berne 138 KV
Transmission Line Relocation and Installation of the Blue Racer Station
Project
Case No. 14-0530-EL-BLN**

Dear Chairman Johnson:

In accordance with rules 4906-5-02(A) and 4906-11-01, Ohio Administrative Code ("OAC"), AEP Ohio Transmission Company ("AEP Ohio Transco") submits this Letter of Notification for expedited review. A check for the expedited review fee has been sent under separate cover. Construction of the project is scheduled to begin in June 2014 and is projected to be in-service in November 2014.

As required by rule 4906-11-01(D), OAC, AEP Ohio Transco has submitted a copy of the enclosed letter of notification to the chief executive officer of each municipal corporation and county and the head of each public agency charged with protecting the environment or of planning land use in the area in which the proposed project will be located. Attached to the letter of notification are copies of the letters that have been submitted.

Should you have any questions, please do not hesitate to contact me.

Respectfully submitted,

/s/ Yazen Alami
Yazen Alami

Attachments

**LETTER OF NOTIFICATION FOR THE
SUMMERFIELD-TEXAS EASTERN BERNE 138
KV TRANSMISSION LINE RELOCATION AND
INSTALLATION OF THE BLUE RACER STATION
PROJECT**

PUCO Case No. 14-0530-EL-BLN

Submitted pursuant to OAC 4906-11-01

**AEP Ohio Transmission Company
(AEP Ohio Transco)**

APRIL 2014

LETTER OF NOTIFICATION
Summerfield-Texas Eastern Berne 138 kV Transmission Line Relocation and
Installation of the Blue Racer Station Project

American Electric Power Ohio Transmission Company (AEP Ohio Transco) is providing the following information in accordance with the procedures delineated in Ohio Administrative Code Section 4906-11-01: Letter of Notification Requirements of the Rules and Regulations of the Ohio Power Siting Board (OPSB).

4906-11-01(B) GENERAL INFORMATION

- 1. The name of the project and applicant's reference number, if any, names and reference numbers(s) of resulting circuits and a brief description of the project, and why the project meets the requirements of a letter of notification.**

The proposed Summerfield-Texas Eastern Berne 138 kV Transmission Line Relocation and Installation of the associated Blue Racer Station Project (Project) is for a specific customer and is not identified in any Long-Term Forecast Reports (LTFRs).

The Project consists of relocating the existing Summerfield-Texas Eastern Berne and constructing a new associated 138 kV transmission switching substation to be known as Blue Racer Station. As proposed in this Letter of Notification, the transmission line work and associated Blue Racer Station will be constructed on property owned by Blue Racer Midstream, LLC, Texas Eastern Transmission Corp, and Mark West adjacent to Swazey Road near the intersection of Township Road 240 in Mead Township, Monroe County, Ohio. Figure 1 shows the location of the project in relation to the surrounding vicinity. The station fence line is approximately 1.6 acres in size and situated between Swazey Road and Clear Fork of the Muskingum River. The approximately 550-foot western 138 kV relocation will connect the Summerfield-Texas Eastern Berne 138 kV line and Blue Racer Station to form a Summerfield-Blue Racer 138 kV circuit. The approximately 520-foot eastern 138 kV relocation will connect the Summerfield-Texas Eastern Berne 138 kV line and Blue Racer Station to form a Blue Racer-Texas Eastern Berne 138 kV circuit. A preliminary overview of the 138 kV transmission line relocation and associated station equipment layout is provided as Figure 2. A preliminary grading plan is provided as Figure 3. A Letter of Notification to construct a 138 kV line owned by South Central Power (SCP) from Blue Racer Station to the Blue Racer Midstream facility will be submitted to the OPSB under separate cover by SCP. As SCP is the local electric cooperative serving the area, AEP considers SCP and Blue Racer Midstream, LLC to be one customer under this LON.

The transmission line portions of the Project, including two 138 kV transmission line relocations totaling approximately 0.2 mile in length, meet the requirements for a Letter of Notification because it is within the types of projects defined by Items (1)(d) and (1)(f) of Attachment A of the interim process defined in the OPSB's September 4, 2012 Finding and Order in Docket 12-1981-GE-BRO. These items state:

(1) Rerouting or extension of new construction of single or multiple circuit electric power transmission line(s) as follows:

(d) Line(s) one hundred twenty-five kV and above, but less than three hundred kV, and greater than 0.2 miles in length but not greater than two miles in length.

(f) Lines(s) primarily needed to attract or meet the requirements of a specific customer or customers.

The station portion of the Project is considered an associated facility as part of this LON.

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

The purpose of this Project is to meet the needs of a specific customer. Buckeye Power Inc. on behalf of SCP has requested a new delivery point "Blue Racer (32-36)" to serve a shale gas customer load. The facility location is near the existing Texas Eastern – Berne Station just south of the Summerfield – Berne 138 kV radial line. The initial load is expected to be 28 MW and the requested service date is August 29, 2014. AEP Ohio Transco's customer, Blue Racer Midstream, LLC has provided AEP Ohio Transco with property for the switching station and a laydown yard for all necessary equipment. A load increase is expected by January – March 2015 for an additional 32 MW for a total load of 60 MW. A new 138 kV switching station, Blue Racer Station, is to be built in a box bay configuration in order to serve AEP Ohio Transco's customer, SCP/Blue Racer Midstream, LLC. Line work is required per the existing Summerfield – Berne 138 kV radial in order to terminate inside the Blue Racer Station and also serve the Texas Eastern – Berne customer.

- 3. The location of the project in relation to existing or proposed lines and stations shown on maps and overlays provided to the public utilities commission of Ohio in the applicant's most recent long term forecast report.**

This project is designed to meet the needs of a specific customer, SCP/Blue Racer Midstream, LLC, and is not referenced in any of AEP Ohio Transco's LTFRs submitted to the Public Utilities Commission of Ohio. Figure 1 shows the general location of the Project in relation to AEP Ohio Transco's existing Summerfield-Texas Eastern Berne 138 kV line.

- 4. 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, natural environment, construction, or engineering aspects of the project.**

AEP Ohio Transco was contacted by SCP/Blue Racer Midstream, LLC regarding their specific needs. AEP Ohio Transco worked with Blue Racer Midstream, LLC to identify a solution for their specific projected electrical load needs. Relocating the existing Summerfield-Texas Eastern Berne 138 kV line through a new 138 kV switching station was identified as the best solution. Blue Racer Midstream, LLC identified available land on their overall property adjacent to the north and south of Death Run for the station site. AEP Ohio Transco evaluated the sites and deemed the area south of Death Run to be better suited for the station due to current and proposed pipelines to the north. AEP Ohio Transco identified no additional sites that were both available and better than the selected location.

- 5. The anticipated construction schedule and proposed in-service date of project.**

Minimal vegetation clearing and grading are scheduled to begin in May 2014. Once grading is completed, construction of the station and the relocation of the 138 kV line will begin in June 2014. The in-service date for the Project is November 2014.

- 6. An area map of not less than 1:24,000-scale clearly depicting the facility's centerline with clearly marked streets, roads, and highways, and clearly written instructions for locating and viewing the facility.**

Figure 1 provides the proposed Project centerline on the United States Geologic Service (USGS) 7.5-minute topographic map of the Summerfield, Ohio quadrangle. To access the Project location from public roads, take Interstate 70 East from Columbus for approximately

80 miles to Exit 180A, to Interstate 77 South toward Marietta. Continue on Interstate 77 South for 18.7 miles to Exit 25 and take State Route 78 toward Caldwell/Woodsfield. Turn left and take State Route 78 for 15.1 miles. Turn right onto Swazey Road (County Road 44) and travel 1.6 miles. The project site is located near the intersection of Swazey Road and Township Road 240.

7. 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.

Blue Racer Station is located on an overall property currently owned by Blue Racer Midstream, LLC, the specific customer requesting the project. The station site will be transferred to AEP Ohio Transco prior to operation. AEP Ohio Transco also obtained easements from adjacent the property owner, Texas Eastern Transmission Corp, for the relocation of the Summerfield-Texas Eastern Berne 138 kV line. No additional properties, easements, options, or land use agreements are necessary.

(C) TECHNICAL FEATURES OF THE PROJECT

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

Transmission Lines Data

The Summerfield-Texas Eastern Berne line is operated at 138 kV and the proposed relocation will not change the operating characteristics. The 138 kV transmission line relocation to Blue Racer Station will consist of one 565.3 cm Type 16 ACSR-TW conductor per phase. One 7#8 alumoweld overhead groundwire will be used as shield wire. The insulator assemblies will consist of one string of nine porcelain disc insulators for each phase. The 138 kV transmission line relocation structures to be installed will include three self-supporting dead end structures.

Figure 2 provides the layout of the proposed transmission line relocation. A structure sketch is included as Figure 4.

Blue Racer Station Data

The equipment and facilities described below will be installed within the fenced area of the proposed station. Typical cross sections of the substation equipment proposed for the Project are shown in the Figure 5.

Breakers: There will be three 138 kV breakers, 3000A, 40kA circuit breakers and foundations installed at the station.

Switchgear: The switchgear will consist of eleven 138 kV, 3000A, 100kA disconnect switches mounted on box bay structures.

Bus Arrangement and Structures: The station will utilize a box bay with adder bay configuration.

Equipment support steel structures will be designed using hot-rolled structural steel shapes such as wide flange, tubing, channels and angles or as folded plate tapered tubular structures. Dead-end structures will be made of tapered tubular steel. All yard structures will be ASTM A36, ASTM A500, or ASTM A572 steel hot-dip galvanized for corrosion protection.

Transformers: As a 138 kV switching station, no transformers are proposed.

Control Buildings: The control houses will consist of pre-engineered or factory fabricated metal buildings to contain all substation control and relay panels and miscellaneous equipment. This would include an RTU, DC distribution panel, batteries, battery chargers, and other miscellaneous equipment. The control houses will include building HVAC and internal lighting. The substation facility will not be manned. Plumbing facilities are not required.

Other Major Equipment: Other equipment can include a 28.8MVAR capacitor bank, surge arresters, metering class current transformers, capacitor voltage transformers (CVT's), and station service voltage transformers (SSVT's).

Lighting systems at the station will be necessary for safety, security, and to comply with applicable standards. There are two different illumination levels for station yard lighting systems. NESC Section 11, Table 111-1 recommends a two foot-candle illumination level in stations for general service lighting. The IES Lighting Handbook, Figure 2-1, recommends a

0.5 foot-candle horizontal illumination level for general security lighting. Security lighting is intended to illuminate the areas inside the station yard that might attract vandalism or theft. Service lighting is intended to provide additional lighting for unscheduled callouts to the station.

2. For electric power transmission lines, the production of electric and magnetic fields during the operation of the proposed electric power transmission line.

(a) Calculated Electric and Magnetic Field Levels

Three loading conditions were examined: (1) normal maximum loading, (2) emergency line loading, and (3) winter normal conductor rating. Normal maximum loading represents the peak flow expected with all system facilities in service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter normal (WN) conductor rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions. It is not anticipated that this line would operate at its WN rating in the foreseeable future. Loading levels used in the EMF calculations are presented below. These levels are based on the 2014 projected system conditions. The corresponding designs, including phase configurations, are shown in Figure 6.

PROJECTED LOADING LEVELS			
Line	Line Loading		
	Normal	Emergency	Winter Normal Rating
Summerfield-Blue Racer 138 kV Line	353	353	531
Blue Racer-Texas Eastern Berne 138 kV Line	109	109	531

The calculated electric and magnetic fields are summarized below. Typical cross section profiles at normal maximum and emergency loading conditions are shown in Figure 7. Typical cross section profiles for winter normal rating are shown in Figure 8.

EMF CALCULATIONS				
Line	Electric Field (kV/m)*	Magnetic Field (mG)*		
		Normal Maximum Load	Emergency Load*	Winter Normal Rating
Summerfield-Blue Racer 138 kV Line	0.13/0.7/0.13	9.4/20.2/4.8	9.4/20.2/4.8	16.9/36/16.9
Blue Racer-Texas Eastern Berne 138 kV Line	0.13/0.7/0.13	9.4/20.2/4.8	9.4/20.2/4.8	16.9/36/16.9

* EMF levels (left ROW edge/maximum/right ROW edge) calculated one meter above ground assuming balanced currents and nominal voltages. Electric fields reflect normal and emergency operation; lower electric fields are expected during emergency conditions when one mutually coupled line is out of service.

(b) Discussion of the Company's Design Alternatives Regarding EMF Levels

Line construction associated with the Project is proposed in locations that would not place them in close proximity to existing residential areas and, therefore, will not significantly increase EMF exposure of the public.

- The estimated cost of the project by Federal Energy Regulatory Commission account, unless the applicant is not an electric light company, a gas company or a natural gas company as defined in Chapter 4905. of the Revised Code (in which case, the applicant shall file the capital costs classified in the accounting format ordinarily used by the applicant in its normal course of business).**

The 2014 capital cost estimates for the proposed project have been tabulated by the Federal Energy Regulatory Commission (FERC) Electric Plant Transmission Accounts:

ESTIMATES OF APPLICABLE INTANGIBLE AND CAPITAL COSTS		
FERC Account Number	Description	Cost
350	Land and Land Rights	\$1
352	Structures & Improvement	Not Applicable
353	Substation Equipment	\$1,800,000
354	Towers & Fixtures	Not Applicable
355	Poles & Fixtures	\$429,123
356	Overhead Conductors & Devices	\$242,238
357	Underground Conductors & Devices	Not Applicable
358	Underground-to-overhead Conversion Equipment	Not Applicable
359	Right-of-way Clearing, Roads, Trails or Other Access	Not Applicable
	TOTAL	\$2,471,361

(D) SOCIOECONOMIC DATA

- 1. A brief description of land use within the vicinity of the proposed project, including:
(a) a list of municipalities, townships and counties affected; and (b) estimates of population density adjacent to rights of way within the study corridor (the U.S. census information may be used to meet this requirement.)**

On behalf of AEP Ohio Transco, URS prepared a Socioeconomic, Land Use, and Agricultural District Review Report. This report is included as Appendix A.

- 2. The location and general description of all agricultural land (including agricultural district land) existing at least sixty days prior to submission of the letter of notification within the proposed electric power transmission line right-of-way, or within the proposed electric power transmission substation fenced-in area, or within the construction site boundary of a proposed compressor station.**

No agricultural land will be impacted by the construction of the Project, as detailed in Appendix A.

- 3. A description of the applicant's investigation (concerning the presence or absence of significant archaeological or cultural resources that may be located within the area likely to be disturbed by the project), a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.**

An archaeological investigation by Weller & Associates, Inc. to confirm site disturbance was completed for this project. A copy of this report will be provided to the Ohio Power Siting Board under separate cover.

- 4. Documentation that the chief executive officer of each municipal corporation and county, and the head of each public agency charged with planning land use in the area in which any portion of the facility is to be located have been notified of the project and have been provided with a copy of the letter of notification. The applicant shall describe the company's public information program used in the siting of the proposed facility. The information submitted shall include either a copy of the material distributed to the public or a copy of the agenda and summary of the meeting(s) held by the applicant.**

AEP Ohio Transco notified John V. Pyles, Monroe County Commissioners; Mr. Lonnie E. Tustin, Monroe County Engineer; Mr. Nathan Betts, Mayor Village of Lewisville; Mr. Christopher Huck, Franklin Township Trustee; Mr. Cliff Delong, Franklin Township Trustee; and Mr. Gary D. West, Franklin Township Trustee in April 2014. Copies of this Letter of Notification have been sent to the Monroe County Commissioners, Monroe County Engineer, Franklin Township Trustees, the Mayor of Lewisville, and the Monroe County Public Library. Copies of the cover letters to these officials and the local library are attached in Appendix B. AEP Ohio Transco will advise local officials of features and the status of the proposed Project.

5. A brief description of any current or pending litigation involving the project known to the applicant at the time of the letter of notification.

There is no known current or pending litigation involving this Project.

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

A Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction stormwater discharges under General Permit OHC000003. There are no other known local, state, or federal requirements that must be met prior to commencement of the proposed Project.

(E) ENVIRONMENTAL DATA

1. A description of the applicant's investigation concerning the presence or absence of federal or state endangered 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 area likely to be disturbed by the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

On behalf of AEP Ohio Transco, URS prepared a Threatened and Endangered Species Report. URS coordinated with the USFWS and ODNR regarding special status species in the vicinity of the Project. No impacts to threatened or endangered species are expected.

The full Threatened and Endangered Species Report for the Project is included as Appendix C.

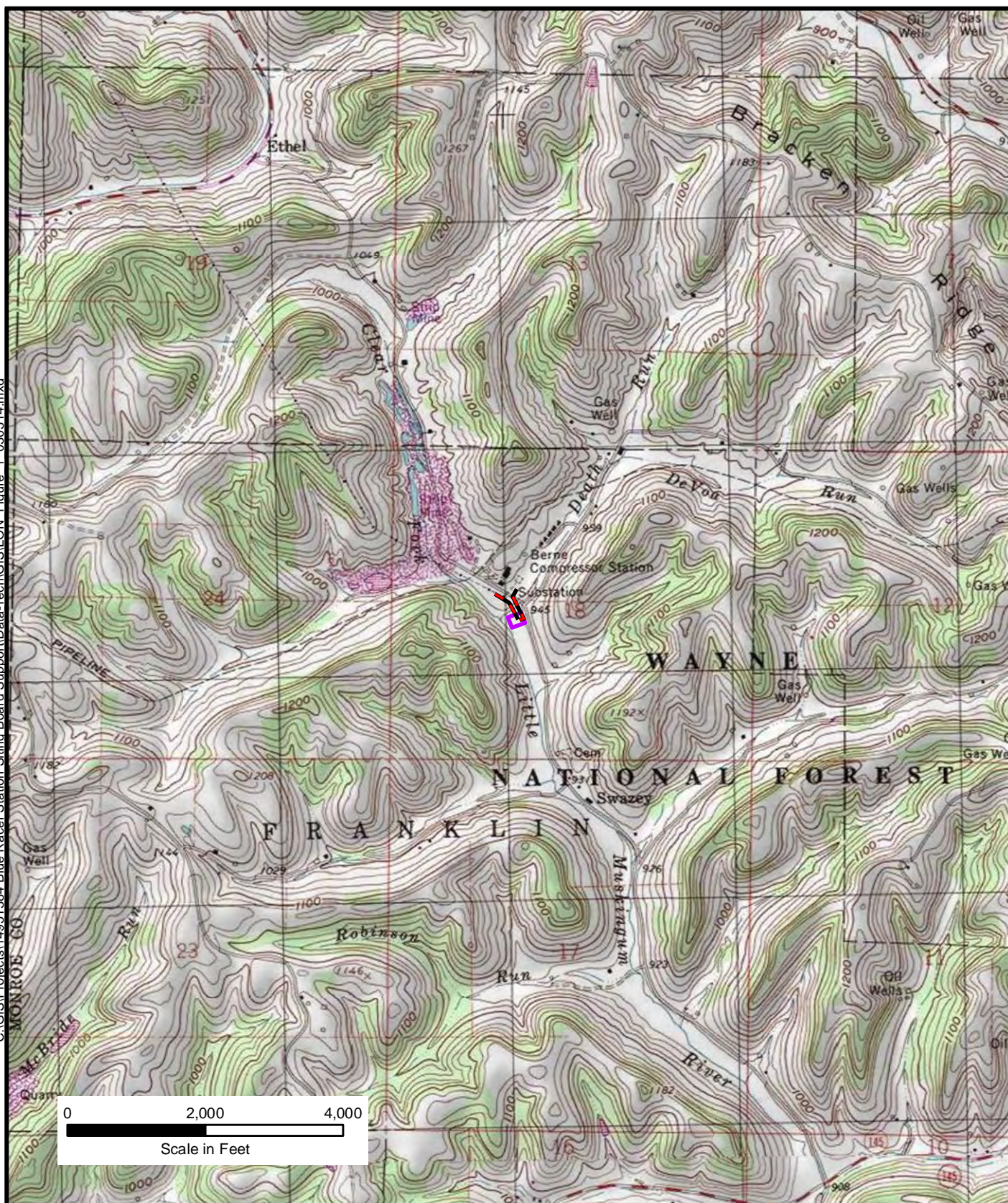
- 2. A description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges,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

On behalf of AEP Ohio Transco, URS prepared an Areas of Ecological Concern, Wetland Delineation, and Stream Assessment Report. No impacts to wetlands or streams are anticipated. The full Areas of Ecological Concern, Wetland Delineation, and Stream Assessment Report for the Project is included as Appendix D.

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

To the best of AEP Ohio Transco's knowledge, no unusual conditions exist that would result in environmental, social, health, or safety impacts. Construction and operation of the proposed Project will meet all applicable safety standards established by the Occupational Safety and Health Administration, and will be in accordance with the requirements specified in the latest revision of the National Electrical Safety Code as adopted by the Public Utilities Commission of Ohio. The Stormwater Pollution Prevention Plan (SWPPP), which will include the Access Plan, will be provided to the OPSB under separate cover, after submission of this Letter of Notification.

C:\GIS\Projects\14951384 Blue Racer Station Siting Board Support\Data-Tech\GIS\LON Figure 1_030314.mxd



LEGEND:

- 138 kV Line Relocation
- Approximate Substation Pad

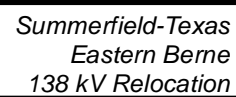


Summerfield-Texas
Eastern Berne
138 kV Relocation

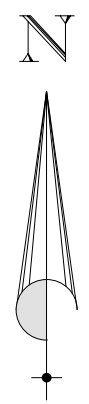
FIGURE 1
PROJECT OVERVIEW

JOB NO.14951384





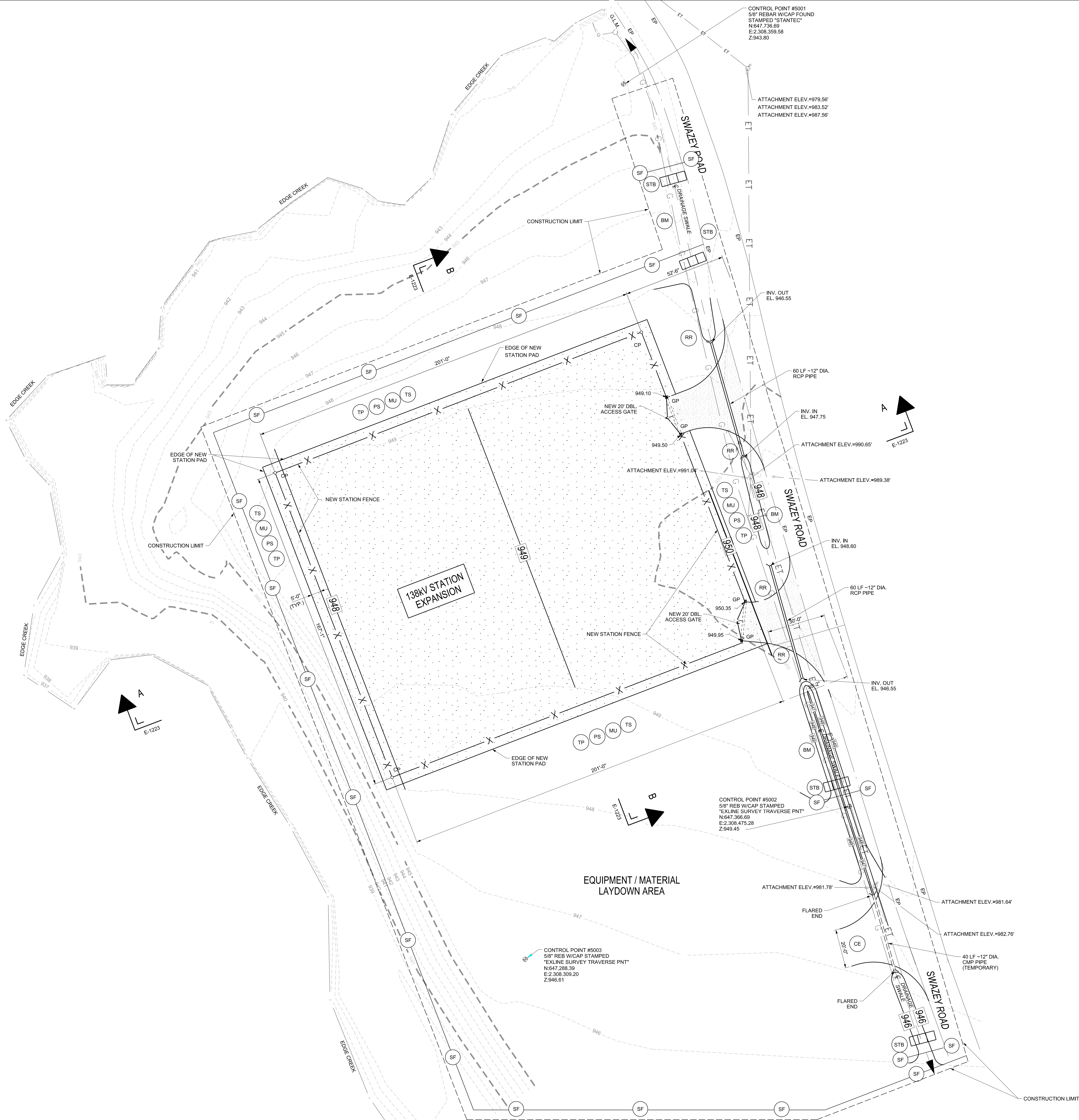
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LEGEND

- CE CONSTRUCTION ENTRANCE
- MU MULCH
- PS PERMANENT SEEDING
- SF SILT FENCE
- TP TOP SOIL
- TS TEMPORARY SEEDING
- STB STRAW BALE
- RR RIP-RAP STONE
- BM CHANNEL BATING
- SCC STORM CONVEYANCE CHANNEL

- 949 CONTOUR (PROPOSED)
- 883 CONTOUR (EXISTING)



EARTHWORK / TRENCHING NOTES:

1. SATISFACTORY SOIL MATERIALS: ASTM D 2487 SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, SP & SM FREE OF ROCK OR GRAVEL LARGER THAN 2 INCHES IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION & OTHER DELETERIOUS MATTER.
2. UNSATISFACTORY SOIL MATERIALS: ASTM D 2487 SOIL CLASSIFICATION GROUPS GC, SC, ML, MH, CL, CH, OL, OH & PT.
3. BACKFILL & FILL MATERIALS: SATISFACTORY SOIL MATERIALS.
4. SUBBASE & BASE MATERIAL: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE CONFORMING TO ASTM D 2940, WITH AT LEAST 95 PERCENT PASSING AN 1 1/2" SIEVE & NOT MORE THAN 6 PERCENT PASSING A NO. 200 SIEVE.
5. ENGINEERED FILL: SUBBASE OR BASE MATERIALS.
6. STATION PAD MATERIAL EVENLY GRADED MIXTURE OF CRUSHED STONE AASHTO #57 WASHED LESTONE AGGREGATE.
7. PROVIDE EROSION CONTROL MEASURES TO PREVENT EROSION OR DISPLACEMENT OF SOILS & DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES.
8. PREVENT SURFACE WATER & SUBSURFACE OR GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES & FROM FLOODING PROJECT SITE & SURROUNDING AREA. PROTECT SUBGRADES & FOUNDATION SOILS FROM SOFTENING & DAMAGE BY RAIN OR WATER ACCUMULATION.
9. "UNCLASSIFIED EXCAVATION" EXCAVATION IS UNCLASSIFIED & INCLUDES EXCAVATION TO REQUIRED SUBGRADE ELEVATIONS REGARDLESS OF THE CHARACTER OF MATERIALS & OBSTRUCTIONS ENCOUNTERED.
10. EXCAVATE SWALES TO INDICATED SLOPES, LINES, DEPTHS & INVERT ELEVATIONS AS INDICATED ON THE GRADING PLAN.
11. DRAINAGE SWALE BOTTOMS: EXCAVATE & SHAPE SWALE BOTTOMS TO PROVIDE UNIFORM BEARING & SUPPORT. SHAPE SUBGRADE TO PROVIDE CONTINUOUS UNIFORMITY. REMOVE STONES & DEBRIS TO ALLOW THE UNIFORM FLOW OF ANY OVERLAND DRAINAGE SURFACE WATER THAT MAY BE PRESENT.
12. STOCKPILE EXCAVATED MATERIALS ACCEPTABLE FOR BACKFILL AND FILL SOIL MATERIALS, INCLUDING ACCEPTABLE BORROW MATERIALS, STOCKPILE TO DRAIN SURFACE WATER.
13. PLACE AND COMPACT INITIAL BACKFILL OF SATISFACTORY SOIL MATERIAL OR SUBBASE MATERIAL, FREE OF PARTICLES LARGER THAN 1 INCH, TO FINAL GRADE. CAREFULLY COMPACT MATERIAL AT THE BOTTOM OF DRAINAGE SWALES AND BRING BACKFILL EVENLY UP ON BOTH SIDES AND ALONG THE FULL LENGTH OF DRAINAGE SWALE.
14. PLACE AND COMPACT FINAL BACKFILL OF SATISFACTORY SOIL MATERIAL TO FINAL SUBGRADE.
15. PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL, COMPACTED BY APPROPRIATE COMPACTION EQUIPMENT AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
16. PERFORM IN-PLACE DENSITY TESTING WITH A NUCLEAR MOISTURE DENSITY GAUGE IN ACCORDANCE WITH ASTM D 2922 AND D 3017. TESTS SHALL BE PERFORMED AT THE RATE OF ONE TEST FOR EVERY 2,000 SQUARE FEET, BUT NOT LESS THAN (3) TESTS FOR EACH SUBGRADE AND FOR EACH SUCCESSIVE LIFT.
17. DRAINAGE SWALE BACKFILL: IN EACH COMPACTED INITIAL AND FINAL BACKFILL LAYER, PERFORM AT LEAST ONE FIELD IN PLACE DENSITY TEST FOR EACH 150 FEET OR LESS OF SWALE, BUT NO FEWER THAN TWO TESTS.
18. DISPOSAL - REMOVE SURPLUS SATISFACTORY SOIL AND WASTE MATERIAL, INCLUDING UNSATISFACTORY SOIL, TRASH AND DEBRIS AND DISPOSE OF IT IN SOIL DISPOSAL AREA ON-SITE, UNLESS OTHERWISE AUTHORIZED BY TCR.

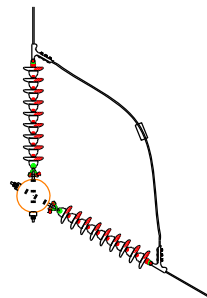
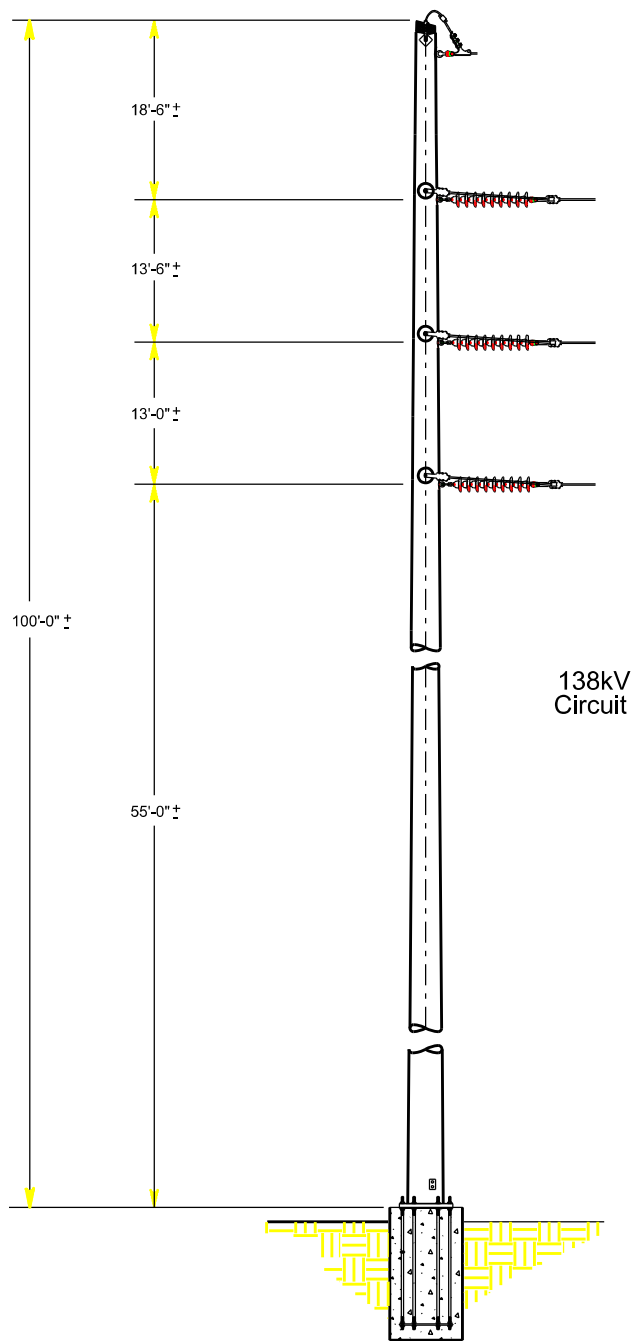
REFERENCE DRAWINGS

- | | |
|--|--------|
| SITE LAYOUT PLAN | E-1221 |
| EARTHWORK CROSS SECTIONS | E-1223 |
| MISC. SITE/CIVIL & EROSION CONTROL DETAILS | E-1224 |

OLD DWG #:		STD DWG #:	
OHIO POWER COMPANY			
MONROE COUNTY		OHIO	
138kV STATION			
GRADING PLAN			
VERTICAL CONTROL & EROSION CONTROL / SEDIMENTATION MEASURES			
SCALE: 1" = 20'	DR: LAM	ENG: BLB	CH: BLB
WO#: 42172937	APPD: CMS	DATE: 4/2/14	
1 RIVERSIDE PLAZA COLUMBUS, OH 43215		REV 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
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CM 1 2 3 4 5 6 7 1/8 INCH 4 8 12 16 TENTHS 10 20 30 INCHES 1 2 3



TOP VIEW

SUMMERFIELD-BERNE 138kV LINE




PROPOSED LINE
DEADEND SINGLE POLE STRUCTURE
TYPICAL CONFIGURATION

NOT TO SCALE



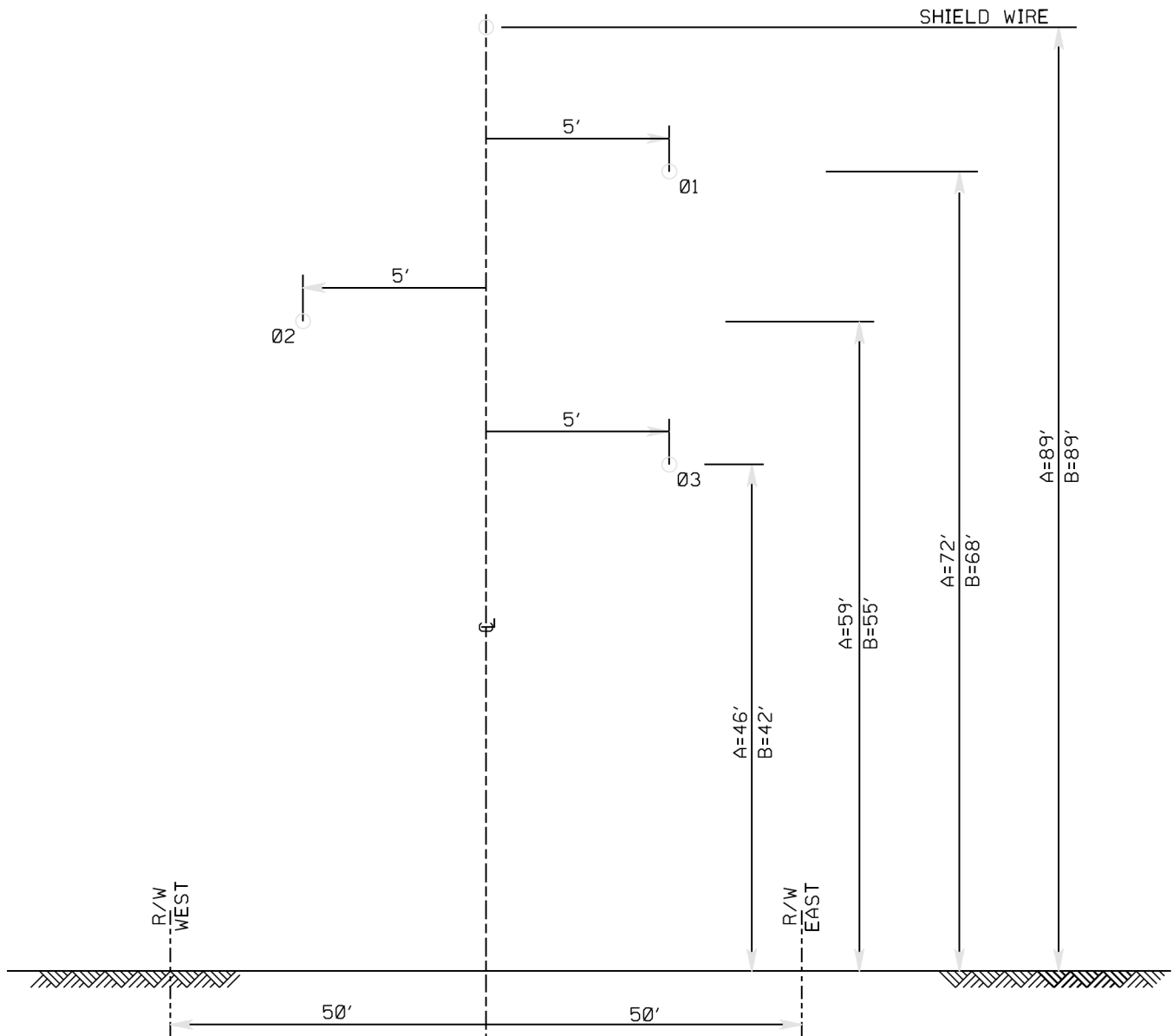
NOT TO BE USED
FOR CONSTRUCTION

OLD DWG #:		STD DWG #:	
<small>*THIS DRAWING IS THE PROPERTY OF AMERICAN ELECTRIC POWER AND IS LOANED UNDER THE CONDITION THAT IT IS NOT TO BE COPIED OR REPRODUCED IN WHOLE OR IN PART FOR ANY USES OTHER THAN THOSE SPECIFIED TO ANY CONTRACT WITHIN THE WRITTEN CONDITIONS OF AMERICAN ELECTRIC POWER. ORDER AND PAY PROCEEDS AND TO BE RETURNED UPON REQUEST.</small>			
CHIO POWER COMPANY			
BLUE RACER STATION			
OHIO			
138KV			
ELECTRICAL ASSEMBLY			
SCALE: 1/8" = 1'-0"	DR: AJM WDR: WDR	ENG: BLH APPD: BRH	CHK: DATE: XXXXXXXX
 AMERICAN ELECTRIC POWER	1 RIVERSIDE PLAZA COLUMBUS, OH 43215		#
			0

SUMMERFIELD - BERNE
138kV CIRCUIT

SUMMERFIELD - BERNE
138kV CIRCUIT

565.3 ACSS/TW TYPE 16 CALUMET CONDUCTORS
7*8 ALUMOWELD SHIELDWIRE



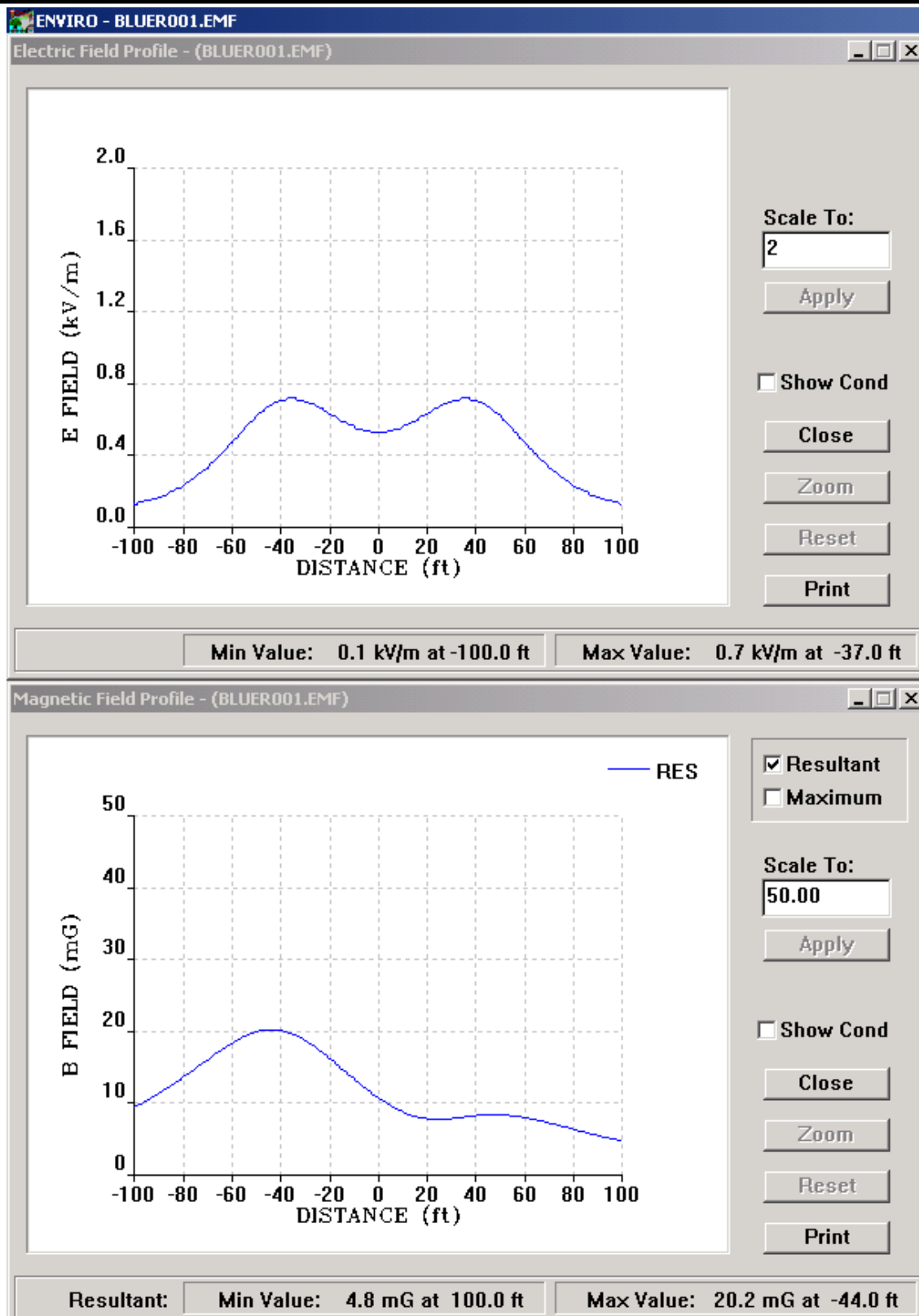
DIMENSION "A" - SINGLE CIRCUIT VERT. CONFIGURATION (STEEL POLE)
(UNDER NORMAL MAX. LINE LOADING & WINTER NORMAL CONDUCTOR RATING @ 120)
DIMENSION "B" - SINGLE CIRCUIT VERT. CONFIGURATION (STEEL POLE)
(UNDER EMERGENCY LINE LOADING @ MOT)

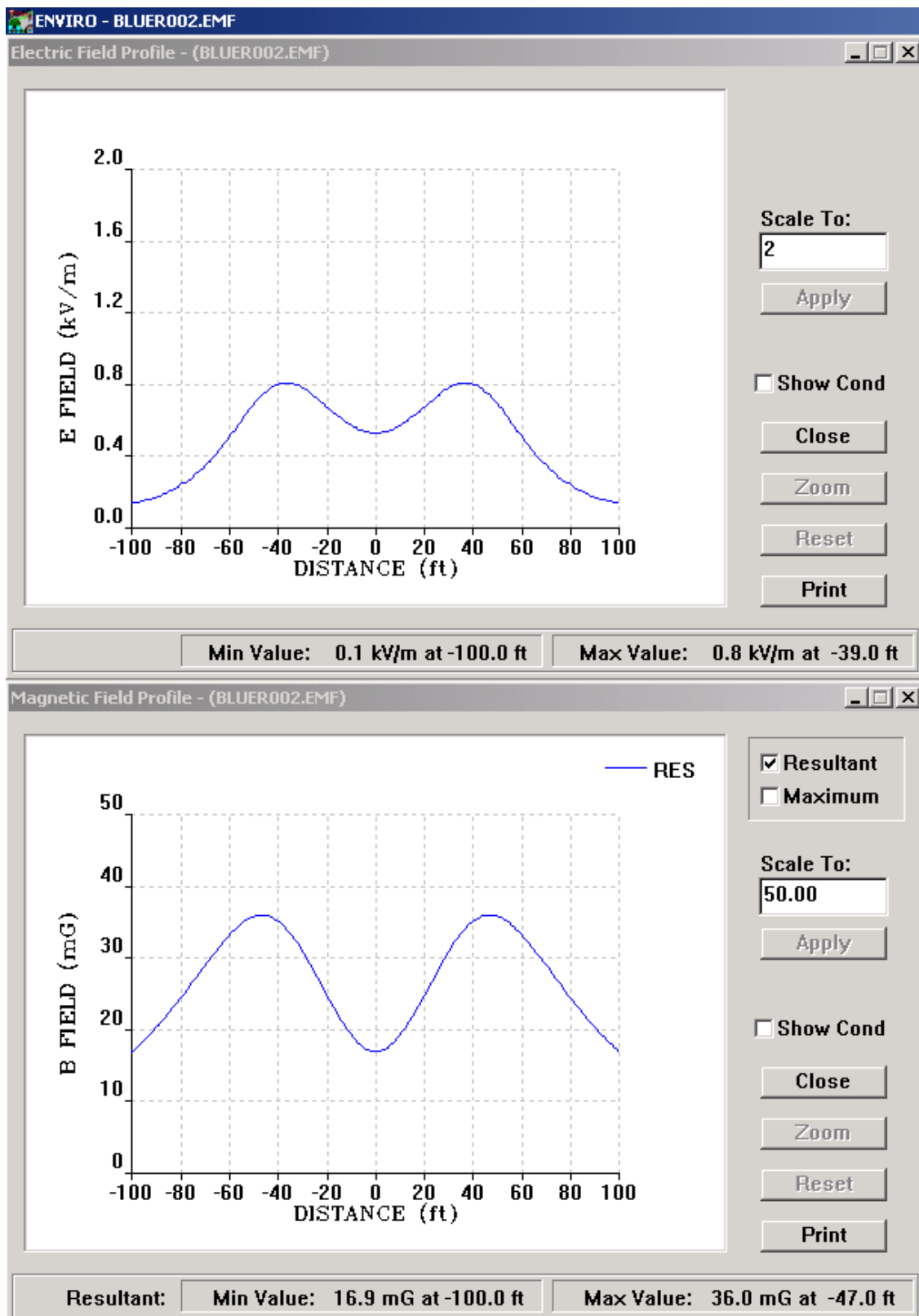


SINGLE CIRCUIT
DEAD END STRUCTURE
SUMMERFIELD - BERNE 138kV LINE

NOT TO SCALE

Figure 6





APPENDIX A

SOCIOECONOMIC, LAND USE, AND AGRICULTURAL DISTRICT REVIEW REPORT

SUMMERFIELD-TEXAS EASTERN BERNE 138 KV TRANSMISSION LINE RELOCATION AND INSTALLATION OF BLUE RACER STATION PROJECT

SOCIOECONOMIC, LAND USE, AND AGRICULTURAL DISTRICT REVIEW REPORT

Prepared for:

American Electric Power Ohio Transmission Company
700 Morrison Road
Gahanna, Ohio 45230



Prepared by:

URS

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 14951384

March 2014

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FIGURES (follow text)

Number

FIGURE 1 LAND USE MAP

1.0 PROJECT DESCRIPTION

This document presents the socioeconomic, land use, and agricultural district review conducted by URS Corporation (URS) for American Electric Power Ohio Transco's (AEP Ohio Transco) proposed Summerfield-Texas Eastern Berne 138 kV Transmission Line Relocation and Installation of Blue Racer Station Project (Project). The Project is needed to meet the needs of a specific customer, Blue Racer Midstream, LLC, for a natural gas processing facility. In response to the customer's needs, AEP Ohio Transco is proposing to relocate the existing Summerfield-Texas Eastern Berne 138 kV transmission through a new 138 kV switching station to be called Blue Racer Station on a property owned by Blue Racer Midstream, LLC adjacent to the Summerfield-Texas Eastern Berne 138 kV line in Monroe County, Ohio.

As part of the Ohio Power Siting Board (OPSB) Letter of Notification (LON) requirements, AEP Ohio Transco is required to assess and report the socioeconomic, land use, and agricultural district characteristics potentially affected by the Project, as stated in Ohio Administrative Code (OAC) Rule 4906-11-01(D)(1) and (2). These rules state:

- (D) Socioeconomic data. Describe the social and ecological impacts of the project. This description shall contain the following information:*
 - (1) A brief, general description of land use within the vicinity of the proposed project, including: (a) a list of municipalities, townships, and counties affected; and (b) estimates of population density adjacent to rights-of-way within the study corridor (the U.S. census information may be used to meet this requirement).*
 - (2) The location and general description of all agricultural land (including agricultural district land) existing at least sixty days prior to submission of the letter of notification within the proposed electric power transmission line right-of-way, or within the proposed electric power transmission substation fenced-in area, or within the construction site boundary of a proposed compressor station.*

AEP Ohio Transco retained URS to conduct a desktop review of socioeconomic, land use, and agricultural district land characteristics. A study area was established that extends 1,000 feet around the approximately 1.6-acre Blue Racer Station fence line and 0.2 mile long Summerfield-Texas Eastern Berne 138 kV line relocation. This resulted in an approximately 120-acre study area. In conjunction with ecological field surveys for the Project, URS noted land uses within this study area. This report will be used to assist AEP Ohio Transco's efforts to avoid or minimize impacts to socioeconomic characteristics and land uses potentially present in the study area during construction activities.

2.0 GENERAL LAND USE DESCRIPTION

Land use within the study area is shown on Figure 1. Current land use characteristics were obtained through review of United States Farm Service Agency National Agricultural Imagery Program aerial photography taken in 2013; the United States Geological Survey (USGS) 7.5-minute topographic map of

the Summerfield, Ohio quadrangle (1976); a tax map of the Project area; and a field reconnaissance conducted in March 2014.

Land uses within the study area include industrial and commercial facilities, wooded parcels, industrial construction sites, grass-covered/old field portions of properties under construction, and transportation and utility corridors. The northern and eastern portions of the alignment of the 138 kV transmission line relocation were observed to be grass-covered portions of industrial or construction site properties during the site reconnaissance. The southern portion of the 138 kV transmission line relocation and station pad area were observed to be covered in fill from the adjacent industrial construction sites. Within 1,000 feet of the Project footprint, wooded and/or scrub-shrub areas account for approximately 40% of the total land uses. A Texas Eastern natural gas processing industrial facility accounts for approximately 20% of the area. A Blue Racer Midstream, LLC natural gas processing facility that is currently under construction accounts for approximately 15%. Undeveloped, grass-covered areas of industrial or under construction properties make up approximate 10% of the study area. One commercial facility, a self-storage business, was identified within 1,000 feet of the Project in the northwestern corner of the study area and accounts for approximately 5% of the study area. Electric transmission and pipeline rights-of-way make up approximately 5% of the total study area. The Swazey Road and Township Road 240 corridors accounts for approximately 5% of the total study area. No residential or institutional land uses were identified within 1,000 feet of the proposed Project property.

Based on a review of the Monroe County website, no comprehensive plans or other future land use documents were identified for the county or Franklin Township. Franklin Township has not adopted zoning regulations.

3.0 POPULATION DENSITY ESTIMATE

The Project is located entirely within Franklin Township of Monroe County. No homes were identified within the approximately 120-acre study area within 1,000 feet of the Project. No planned residential developments within the study site were identified as part of this study.

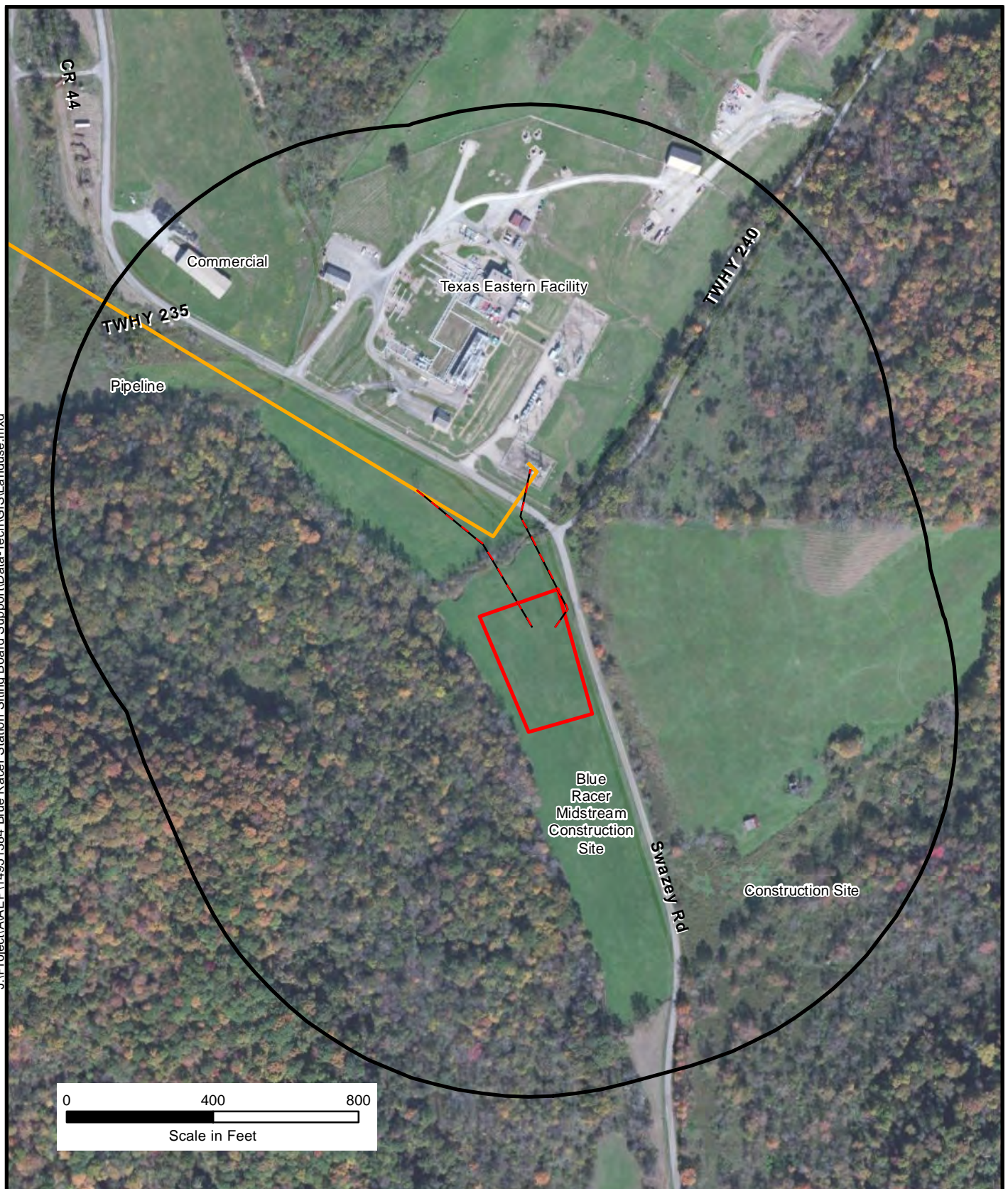
4.0 AGRICULTURAL DISTRICT LAND

URS contacted the Monroe County Auditor's office on March 10, 2014 regarding parcels registered in the agricultural district land program. There are reportedly no agricultural district land parcels in Franklin Township.

5.0 CONCLUSION

The Project is not expected to significantly impact current socioeconomic characteristics, land use, or agricultural district land in the vicinity. The Project is not expected to impact any future land use plans for the area.

J:\Project\AAEP\14951384 Blue Racer Station Siting Board Support\Data-Tech\GIS\Landuse.mxd



LEGEND:

- Approximate Station Pad
- Approximate 138 kV Line Relocation
- Existing 138 kV Transmission Line



Blue Racer Station

FIGURE 1
LAND USE MAP

JOB NO.14951384



APPENDIX B

PUBLIC OFFICIALS LETTERS SERVING COPY OF LETTER OF NOTIFICATION



American Electric Power
700 Morrison Road
Gahanna, OH 43230

April 11, 2014

Mayor Nathan Betts
Village of Lewisville
33692 State Route 78
Lewisville, OH 43754

RE: Letter of Notification
Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation
of the Blue Racer Station Project
Case Number: 14-0530-EL-BLN

Dear Mr. Betts:

In accordance with Rules 4906 of the Ohio Administrative Code (OAC), AEP Ohio Transmission Company (AEP Ohio Transco) is required to submit a Letter of Notification to the State of Ohio Power Siting Board (OPSB) whenever certain changes are made to our transmission facilities.

The proposed Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation of the Blue Racer Station Project, PUCO Case Number 14-0530-EL-BLN, consists of the construction of a new switching substation located near the intersection of Swazey Road and Township Road 240 in Franklin Township, Monroe County, Ohio. The Project also consists of relocating an existing 138-kV single-circuit line to feed into the new switching station. The new line will be built on AEP Ohio Transco standard single-circuit 138 kV structures. This rebuild project will provide for a specific customer and is not identified in any Long-Term Forecast Reports.

The Project's construction will be on property owned by AEP Ohio Transco or the specific customer in Franklin Township, Monroe County, Ohio.

In compliance with Rule 4906-11-02 of the OPSB Rules and Regulations, we have prepared and filed the attached Letter of Notification. This Notice contains details on the line location, project description and construction schedule, and is submitted for your information.

Please feel free to contact me at 614-552-1929 and I would be happy to answer any questions concerning this project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brett E. Schmied', enclosed within a blue circular scribble.

Brett E. Schmied, J.D.
Project Outreach Specialist
American Electric Power

cc: Eric Bennett, Project Manager



American Electric Power
700 Morrison Road
Gahanna, OH 43230

April 11, 2014

Monroe County Board of Commissioners
Mr. John V. Pyles
Mr. Tim Price
Mr. Carl Davis
101 North Main Street, Room 34
Woodsfield, OH 43793

RE: Letter of Notification
Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation
of the Blue Racer Station Project
Case Number: 14-0530-EL-BLN

Dear Commissioners:

In accordance with Rules 4906 of the Ohio Administrative Code (OAC), AEP Ohio Transmission Company (AEP Ohio Transco) is required to submit a Letter of Notification to the State of Ohio Power Siting Board (OPSB) whenever certain changes are made to our transmission facilities.

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Sincerely,

A handwritten signature in blue ink, appearing to read 'Brett E. Schmied', is written over a horizontal line.

Brett E. Schmied, J.D.
Project Outreach Specialist
American Electric Power

cc: Eric Bennett, Project Manager



American Electric Power
700 Morrison Road
Gahanna, OH 43230

April 11, 2014

Mr. Cliff Delong
Franklin Township Trustee
42385 Mill Street
Stafford, OH 43786

RE: Letter of Notification
Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation
of the Blue Racer Station Project
Case Number: 14-0530-EL-BLN

Dear Mr. Delong:

In accordance with Rules 4906 of the Ohio Administrative Code (OAC), AEP Ohio Transmission Company (AEP Ohio Transco) is required to submit a Letter of Notification to the State of Ohio Power Siting Board (OPSB) whenever certain changes are made to our transmission facilities.

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Brett E. Schmied, J.D.
Project Outreach Specialist
American Electric Power

cc: Eric Bennett, Project Manager



American Electric Power
700 Morrison Road
Gahanna, OH 43230

April 11, 2014

Ms. Julie A. Hogue
Franklin Township Trustee
32668 Hartshorn Ridge Road
Lewisville, OH 43754

RE: Letter of Notification
Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation
of the Blue Racer Station Project
Case Number: 14-0530-EL-BLN

Dear Ms. Hogue:

In accordance with Rules 4906 of the Ohio Administrative Code (OAC), AEP Ohio Transmission Company (AEP Ohio Transco) is required to submit a Letter of Notification to the State of Ohio Power Siting Board (OPSB) whenever certain changes are made to our transmission facilities.

The proposed Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation of the Blue Racer Station Project, PUCO Case Number 14-0530-EL-BLN, consists of the construction of a new switching substation located near the intersection of Swazey Road and Township Road 240 in Franklin Township, Monroe County, Ohio. The Project also consists of relocating an existing 138-kV single-circuit line to feed into the new switching station. The new line will be built on AEP Ohio Transco standard single-circuit 138 kV structures. This rebuild project will provide for a specific customer and is not identified in any Long-Term Forecast Reports.

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Sincerely,

A handwritten signature in blue ink, appearing to read "Brett E. Schmied", is written over a circular blue ink stamp.

Brett E. Schmied, J.D.
Project Outreach Specialist
American Electric Power

cc: Eric Bennett, Project Manager



American Electric Power
700 Morrison Road
Gahanna, OH 43230

April 11, 2014

Mr. Christopher Huck
Franklin Township Trustee
42688 State Route 145
Lewisville, OH 43754

RE: Letter of Notification
Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation
of the Blue Racer Station Project
Case Number: 14-0530-EL-BLN

Dear Mr. Huck:

In accordance with Rules 4906 of the Ohio Administrative Code (OAC), AEP Ohio Transmission Company (AEP Ohio Transco) is required to submit a Letter of Notification to the State of Ohio Power Siting Board (OPSB) whenever certain changes are made to our transmission facilities.

The proposed Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation of the Blue Racer Station Project, PUCO Case Number 14-0530-EL-BLN, consists of the construction of a new switching substation located near the intersection of Swazey Road and Township Road 240 in Franklin Township, Monroe County, Ohio. The Project also consists of relocating an existing 138-kV single-circuit line to feed into the new switching station. The new line will be built on AEP Ohio Transco standard single-circuit 138 kV structures. This rebuild project will provide for a specific customer and is not identified in any Long-Term Forecast Reports.

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Sincerely,

A handwritten signature in blue ink, appearing to read "Brett E. Schmied", is written over a blue circular stamp or seal.

Brett E. Schmied, J.D.
Project Outreach Specialist
American Electric Power

cc: Eric Bennett, Project Manager



American Electric Power
700 Morrison Road
Gahanna, OH 43230

April 11, 2014

Monroe County Engineer
Mr. Lonnie E. Tustin
101 North Main Street, 2nd Floor
Woodsfield, OH 49793

RE: Letter of Notification
Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation
of the Blue Racer Station Project
Case Number: 14-0530-EL-BLN

Dear Mr. Tustin:

In accordance with Rules 4906 of the Ohio Administrative Code (OAC), AEP Ohio Transmission Company (AEP Ohio Transco) is required to submit a Letter of Notification to the State of Ohio Power Siting Board (OPSB) whenever certain changes are made to our transmission facilities.

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Sincerely,

A handwritten signature in blue ink, appearing to read "Brett E. Schmied", with a large, stylized flourish at the end.

Brett E. Schmied, J.D.
Project Outreach Specialist
American Electric Power

cc: Eric Bennett, Project Manager



American Electric Power
700 Morrison Road
Gahanna, OH 43230

April 11, 2014

Mr. Gary D. West
Franklin Township Trustee
42339 State Route 145
Stafford, OH 43786

RE: Letter of Notification
Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation
of the Blue Racer Station Project
Case Number: 14-0530-EL-BLN

Dear Mr. West:

In accordance with Rules 4906 of the Ohio Administrative Code (OAC), AEP Ohio Transmission Company (AEP Ohio Transco) is required to submit a Letter of Notification to the State of Ohio Power Siting Board (OPSB) whenever certain changes are made to our transmission facilities.

The proposed Summerfield-Texas Eastern Berne 138-kV Transmission Line Relocation and Installation of the Blue Racer Station Project, PUCO Case Number 14-0530-EL-BLN, consists of the construction of a new switching substation located near the intersection of Swazey Road and Township Road 240 in Franklin Township, Monroe County, Ohio. The Project also consists of relocating an existing 138-kV single-circuit line to feed into the new switching station. The new line will be built on AEP Ohio Transco standard single-circuit 138 kV structures. This rebuild project will provide for a specific customer and is not identified in any Long-Term Forecast Reports.

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Sincerely,

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Brett E. Schmied, J.D.
Project Outreach Specialist
American Electric Power

cc: Eric Bennett, Project Manager

APPENDIX C

THREATENED AND ENDANGERED SPECIES SURVEY REPORT

SUMMERFIELD-TEXAS EASTERN BERNE 138 KV TRANSMISSION LINE RELOCATION AND INTALLATION OF BLUE RACER STATION PROJECT

THREATENED AND ENDANGERED SPECIES SURVEY REPORT

Prepared for:

American Electric Power Ohio Transmission Company
700 Morrison Road
Gahanna, Ohio 43230



Prepared by:

URS

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 14951384

April 2014

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ATTACHMENT

Number

ATTACHMENT A	AGENCY RESPONSES
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1.0 PROJECT DESCRIPTION

This document presents the results of the threatened and endangered species assessment conducted by URS Corporation (URS) for American Electric Power Ohio Transco's (AEP Ohio Transco) proposed Summerfield-Texas Eastern Berne 138 kV Transmission Line Relocation and Installation of Blue Racer Station Project (Project). The Project is needed to meet the needs of a specific customer, Blue Racer Midstream, LLC, for a natural gas processing facility. In response to the customer's needs, AEP Ohio Transco is proposing to relocate the existing Summerfield-Texas Eastern Berne 138 kV transmission line through a new 138 kV switching station to be called Blue Racer Station on a property owned by Blue Racer Midstream, LLC adjacent to the Summerfield-Texas Eastern Berne 138 kV line in Monroe County, Ohio.

As part of the Ohio Power Siting Board (OPSB) Letter of Notification (LON) requirements, AEP Ohio Transco is required to assess and report the socioeconomic, land use, and agricultural district characteristics potentially affected by the Project, as stated in Ohio Administrative Code (OAC) Rule 4906-11-01(D)(1) and (2). This rule states:

(E) *Environmental data. Describe the environmental impacts of the proposed project. This description shall include the following information:*

- (1) *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 area likely to be disturbed by the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.*

AEP retained URS to conduct threatened and endangered species review and field survey within areas crossed by the proposed Project. This report will be used to assist AEP Ohio Transco's efforts to avoid impacts to threatened and endangered species potentially present in the study area during construction activities.

2.0 METHODS

The first phase of the survey involved a review of online lists of federal and state species of concern. In addition to the review of available literature, URS submitted a request to Ohio Department of Natural Resources (ODNR) Biodiversity Database for GIS records of species of concern that were reported within close proximity to the Project. These GIS records were overlain on the Project GIS maps to identify designated species and other sensitive areas as reported by ODNR in relation to the Project. A copy of the letter provided with the Biodiversity Database GIS records is included in Attachment A. URS also submitted a coordination letter to the U.S. Fish and Wildlife Service (USFWS) and ODNR soliciting comments on the Project. Copies of the response letters provided by ODNR and USFWS are included as Appendix A. Agency identified species and available species-specific information was reviewed to determine the various habitat types that listed species are known to frequent. This information was used

during the field survey to assess the potential for these species of concern in, or near the Project study corridor.

3.0 RESULTS

URS field ecologists conducted a designated species habitat survey in conjunction with the stream and wetland field surveys on March 10, 2014. URS observed the preliminary station pad site to be covered with fill and graded. This activity appeared to be related to construction of the adjacent Blue Racer Midstream, LLC facility to the south. A limited number of trees were observed adjacent to Death Run just north of the preliminary station pad site. A portion of this area is crossed by the preliminary 138 kV line relocation. URS understands that tree clearing along Death Run is necessary for proposed construction of multiple natural gas pipelines to the Blue Racer Midstream, LLC facility or the Texas Eastern processing facility to the northeast. No additional tree clearing is expected to be necessary for the Project.

3.1 State Species of Concern

ODNR provided Biodiversity Database GIS records and a corresponding letter response dated March 6, 2014. The data included the Project area plus an approximate one mile buffer. An oak-maple-tuliptree forest, identified as a significant plant community site, was mapped approximately 0.6 mile from the Project site. No other records of special status species or habitats were identified within the search area. A copy of the ODNR response is included in Attachment A. ODNR provided a letter response dated April 10, 2014, indicating the ranges of several species that potentially occur within the vicinity of the proposed Project area. Table 1 lists the four species identified by the ODNR and comments regarding the Project's potential to impact the species is discussed below. ODNR indicated that no records of rare or endangered species were identified at the Project site. A copy of the ODNR response is included in Appendix A.

**TABLE 1
STATE LISTED SPECIES THAT COULD INHABIT
MONROE COUNTY, OHIO**

Common Name	Scientific Name	State Status
Mammals		
Indiana bat	<i>Myotis sodalis</i>	Endangered
Bobcat	<i>Lynx rufus</i>	Threatened
Black bear	<i>Ursus americanus</i>	Endangered
Amphibians		
Eastern Hellbender	<i>Cryptobranchus alleganiensis</i>	Endangered

ODNR requested that suitable Indiana bat habitat should be conserved or cut between October 1 and March 31. A net survey must be conducted between June 15 and July 31 prior to cutting, if clearing is necessary during summer months.

The ranges of the black bear and bobcat were identified to potentially be within the vicinity of the Project. ODNR stated that due to the mobility of these species, no impacts are likely.

The eastern hellbender is an entirely aquatic salamander and inhabits perennial streams with large flat rocks. Due to the location and that there is no in-water work planned, ODNR stated that the Project is not likely to impact this species.

No state species of concern or signs of these species, and no unique habitats were observed during the field survey. No state species of concern are expected to be impacted by the proposed Project.

3.2 Federal Species of Concern

To address the Project's potential to impact federally protected species, URS conducted a web based literature review of USFWS Ohio County Distribution of *Federally Listed Threatened, Endangered, Proposed, and Candidate Species, Revised January 2014*, to identify what species potentially occur in Monroe County, Ohio. Table 2 lists the two species identified during the USFWS literature review. A copy of the USFWS response is included in Attachment A.

**TABLE 2
FEDERALLY LISTED SPECIES THAT COULD INHABIT
MONROE COUNTY, OHIO**

Common Name	Scientific Name	Federal Status	County
<i>Mammals</i>			
Indiana bat	<i>Myotis sodalis</i>	Endangered	Monroe
Northern long-eared bat	<i>Myotis septentrionalis</i>	Proposed Endangered	Monroe

Ohio County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species, Revised January 2014.

Accessed March 17, 2014: <http://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyList2014.pdf>

Indiana Bat: The federal government lists this species as endangered in Ohio. Winter Indiana bat hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. The 8- to 10-inch diameter size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), birch (*Betula* spp.), and elm (*Ulmus* spp.) have been found to be utilized by the Indiana bat. These tree species and many others may be used when dead, if there are adequately sized patches of loosely-adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes a mixture of loose-barked trees with 60 to 80 percent canopy closure and a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy). The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey. Proximity to water is critical, because insect prey density is greater over or near open water. While much of the Project property is wooded, only a limited number of trees suitable for potential Indiana bat habitat

were observed. The presence of only ephemeral streams also suggests limited potential for this species to be on the Project property.

Northern Long-Eared Bat: The federal government lists this species as proposed endangered in Ohio. As with the Indiana bat, winter northern long-eared bat hibernacula include caves and mines, while summer habitat typically includes tree species exhibiting exfoliating bark or cavities that can be used for roosting. Northern long-eared bat has also been found, albeit rarely, roosting in structures like barns and sheds. Similar to the Indiana bat, characteristics on the Project property suggest it is not likely to inhabit the property.

In an email dated January 3, 2014, USFWS recommended that trees exhibiting characteristics suitable as habitat for the Indiana and northern long-eared bats, as well as any surrounding wooded areas, should be saved. However, if these areas cannot be avoided, they should only be cut from October 1 through March 31. If implementation of the seasonal tree cutting restriction is not possible, summer surveys should be conducted by an approved surveyor in coordination with USFWS to document the presence or likely absence of the species. Due to the project type, size, and location, USFWS indicated that they do not anticipate adverse effects to any other federally listed species.

4.0 SUMMARY

AEP retained URS to conduct threatened and endangered species review for areas located within 1,000 feet of the proposed Project and a field survey within the proposed Project location. This report will be used to assist AEP's efforts to avoid impacts to threatened and endangered species potentially present in the study area during construction activities. The field survey was conducted by URS field biologists on March 10, 2014. No species of concern or signs of these species, and no unique habitats were observed. No species of concern are expected to be impacted by the proposed Project.

The ODNR and USFWS recommended that trees exhibiting characteristics suitable as habitat for the Indiana and northern long-eared bats, as well as any surrounding wooded areas should be saved. However, if these areas cannot be avoided, they should only be cut from October 1 through March 31. If implementation of the seasonal tree cutting restriction is not possible, summer surveys should be conducted by an approved surveyor in coordination with USFWS to document the presence or likely absence of the species. Due to the project type, size, and location, USFWS indicated that they do not anticipate adverse effects to any other federally listed species.

5.0 CONCLUSION

Based upon the nature of the Project, review of available current literature, review of federal and state records of species of concern and the field survey conducted on March 10, 2014, it is not anticipated that federal or state species of concern will be impacted by the Project as currently planned. However, contact with the USFWS, indicates that seasonal tree clearing restrictions, or additional summer surveys, are required to limit potential impacts to the Indiana and northern long-eared bats. At this time, URS understands that no tree clearing or in-water work is necessary for the Project as proposed.

ATTACHMENT A

AGENCY RESPONSES



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife

Scott Zody, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693

March 6, 2014

Aaron Geckle
URS
525 Vine Street, Suite 1800
Cincinnati, OH 45202

Dear Mr. Geckle

I have reviewed the Natural Heritage Database for the Blue Racer Station Project including a one mile buffer in Franklin Township, Monroe County. We have a record for a significant plant community site in your project area. I am attaching a shape file showing its location. This data may not be published or distributed beyond the scope of the project description on the data request form without prior written permission of the Natural Heritage Program.

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. Although we inventory all types of plant communities, we only maintain records on the highest quality areas.

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 614-265-6452 if I can be of further assistance.

Sincerely,

A handwritten signature in blue ink that reads "Greg Schneider".

Greg Schneider, Administrator
Ohio Natural Heritage Program



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

April 10, 2014

Aaron Geckle
URS Corporation
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Re: 14-170; Blue Racer Station Project, Monroe County, Ohio

Project: AEP intends to construct a new 138kV switching substation and relocate the existing 138kV line into the new station in Franklin Township.

Location: The proposed station site is approximately two acres and is situated between Swazey Road and Clear Fork of the Muskingum River in Franklin Township, Monroe 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.

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

The DOW recommends that impacts to 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 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 habitat consists of suitable 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. If suitable trees occur within the project area, these trees should be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must

occur between October 1 and March 31. If suitable trees must be cut during the summer months, a net survey must be conducted between June 15 and July 31, prior to cutting. Net surveys shall incorporate either two net sites per square kilometer of project area with each net site containing a minimum of two nets used for two consecutive nights, or one net site per kilometer of stream within the project limits with each net site containing a minimum of two nets used for two consecutive nights. If no tree removal is proposed, the project is not likely to impact this species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. This long-lived, entirely aquatic salamander inhabits perennial streams with large flat rocks. In-water work in hellbender streams can reduce availability of large cover rocks and can destroy hellbender nests and/or kill adults and juveniles. The contribution of additional sediment to hellbender streams can smother large cover rocks and gravel/cobble substrate (used by juveniles), making them unsuitable for refuge and nesting. Projects that contribute to altered flow regimes (e.g., by increasing areas of impervious surfaces or modifying the floodplain) can also adversely affect hellbender habitat. Due to the location, and that there is no in-water work planned, this project is not likely to impact this species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species, and the bobcat (*Lynx rufus*), a state threatened species. Due to the mobility of these species, this project is not likely to impact these species.

The ODNR Natural Heritage Database has no records for rare or endangered species at this project site. We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges or other protected natural areas within the project area. Our inventory program does not provide a complete survey of Ohio wildlife, 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.

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

Geckle, Aaron

From: keith_lott@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Wednesday, March 19, 2014 8:11 AM
To: Geckle, Aaron
Subject: USFWS review of Blue Racer Station, Monroe County

TAILS: 03E15000-2014-TA-0858

Re: Blue Racer Station, Monroe County

Dear Mr. Geckle,

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 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.

ENDANGERED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the Indiana bat (*Myotis sodalis*), a federally listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines. During winter, Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

- (1) dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas;
- (2) live trees (such as shagbark hickory and oaks) which have exfoliating bark;
- (3) stream corridors, riparian areas, and upland woodlots which provide forage sites.

Should habitat exhibiting the characteristics described above be present at the proposed project site, we recommend that they, as well as surrounding trees, be saved wherever possible. However, if these trees cannot be avoided, they should only be cut between October 1 and March 31. If implementation of the seasonal tree cutting restriction is not possible, summer surveys should be conducted to document the presence or likely absence of the Indiana bat within the project area during the summer. The survey must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office.

The proposed project lies within the range of the northern long-eared bat (*Myotis septentrionalis*), a species that is currently proposed for listing as federally endangered. Recently white-nose syndrome (WNS), a novel fungal pathogen, has caused serious declines in the northern long-eared bat population in the northeastern U.S. WNS

has also been documented in Ohio, but the full extent of the impacts from WNS in Ohio are not yet known.

During winter, northern long-eared bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

- (1) Roosting habitat in dead or live trees and snags with cavities, peeling or exfoliating bark, split tree trunk and/or branches, which may be used as maternity roost areas;
- (2) Foraging habitat in upland and lowland woodlots and tree lined corridors;
- (3) Occasionally they may roost in structures like barns and sheds.

It appears that habitat exhibiting the characteristics described above may be present at the proposed project site. We recommend that trees exhibiting any of the characteristics listed above, as well as any wooded areas or tree lined corridors be saved wherever possible. However, if these areas cannot be avoided, they should only be cut from October 1 through March 31.

If there is a Federal nexus for the project (e.g., Federal funding provided, Federal permits required to construct), no tree clearing on any portion of the parcel should occur 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, for our review and concurrence.

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

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (ESA), as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U. S. Fish and Wildlife Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Sincerely,



Mary Knapp, Ph.D.
Field Supervisor

APPENDIX D

AREAS OF ECOLOGICAL CONCERN, WETLAND DELIINATION, AND STREAM ASSESSMENT REPORT

SUMMERFIELD-TEXAS EASTERN BERNE 138 KV TRANSMISSION LINE RELOCATION AND INSTALLATION OF BLUE RACER STATION PROJECT

AREAS OF ECOLOGICAL CONCERN, WETLAND DELINEATION, AND STREAM ASSESSMENT REPORT

Prepared for:

American Electric Power Ohio Transmission Company
700 Morrison Road
Gahanna, Ohio 45230



Prepared by:

URS

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 14951384

March 2014

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FIGURES (follow text)

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FIGURE 1	ECOLOGICAL SURVEY RESULTS
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ATTACHMENTS (follow figure)

Number

ATTACHMENT A	PHOTOGRAPHS
ATTACHMENT B	WETLAND FORMS
ATTACHMENT C	STREAM FORMS

1.0 PROJECT DESCRIPTION

This document presents the results of the wetland delineation and stream assessment conducted by URS Corporation (URS) for American Electric Power Ohio Transco's (AEP Ohio Transco) proposed Summerfield-Texas Eastern Berne 138 kV Transmission Line Relocation and Installation of Blue Racer Station Project (Project). The Project is needed to meet the needs of a specific customer, Blue Racer Midstream, LLC, for a natural gas processing facility. In response to the customer's needs, AEP Ohio Transco is proposing to relocate the existing Summerfield-Texas Eastern Berne 138 kV transmission through a new 138 kV switching station to be called Blue Racer Station on a property owned by Blue Racer Midstream, LLC adjacent to the Summerfield-Texas Eastern Berne 138 kV line in Monroe County, Ohio.

As part of the Ohio Power Siting Board (OPSB) Letter of Notification (LON) requirements, AEP Ohio Transco is required to describe the investigation concerning the presence or absence of areas of ecological concern as stated in Ohio Administrative Code (OAC) Rule 4906-15-11-01(E)(2). This rule states:

- (E) *Environmental data. Describe the environmental impacts of the proposed project. This description shall include the following information:*
 - (2) *A description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the areas likely to be disturbed by the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.*

AEP Ohio Transco retained URS to review areas of ecological concern, as defined above, within the proposed Project vicinity and conduct a field survey of wetlands and streams within the limits of the transmission line relocation and associated proposed station. The ecological study area extended well beyond the proposed construction limits of the preliminary station pad and line relocation. This report will be used to assist AEP Ohio Transco's efforts to avoid impacts to areas of ecological concern present in the study area during construction.

2.0 METHODS

2.1 Special Status Ecological Areas

URS reviewed maps and GIS data in order to identify national and state forests and parks, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries in the Project vicinity. GIS data sources included the ODNr Biodiversity Database and federal land and parks layers available from Environmental Systems Research Institute (ESRI). Property ownership within 1,000 feet of the Project was reviewed to identify

parcels that may have special status. URS also noted land use during the field reconnaissance conducted on March 10, 2014.

Floodplains were evaluated based on the Federal Emergency Management Agency's (FEMA) Flood Map Viewer (<https://hazards.fema.gov/wps/portal/mapviewer>).

2.2 Wetland Assessment

National Wetland Inventory (NWI) wetlands are areas of potential wetland that have been identified from U.S. Fish and Wildlife Service (USFWS) aerial photo-interpretation and which have typically not been field verified. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps, as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an aerial view. In addition, many NWI-mapped wetlands are not found during field surveys. As a result, NWI maps do not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

The Project area was reviewed for the presence of wetlands using the procedures outlined in the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (1987 Manual) (Environmental Laboratory, 1987) in conjunction with the procedures outlined in the 2012 USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Regional Supplement).

The Regional Supplement was released in January 2012 by the USACE to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The 1987 Manual and Regional Supplement define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

URS utilized the routine delineation method described in the 1987 Manual and Regional Supplement that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance.

URS biologists identified wetlands through a pedestrian site reconnaissance of the site, including identifying the vegetation communities, soils identification where necessary, conducting a geomorphologic assessment of hydrology, and notation of disturbance. Identified wetland boundaries were noted where one or more of these criteria gave way to upland characteristics. The wetland boundaries were recorded with a handheld Trimble GeoXH GPS unit.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which URS is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable

standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may become invalidated, wholly or in part, by changes beyond the control of URS.

Wetland Classifications: Wetlands were classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979). The single wetland identified within the survey area was classified as a freshwater, Palustrine system, which includes nontidal wetlands dominated by trees, shrubs, emergents, mosses, or lichens. The class was identified as Palustrine emergent (PEM). Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

Ohio Rapid Assessment Method v. 5.0: The Ohio Environmental Protection Agency's (Ohio EPA) Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under Section 401 of the Clean Water Act. Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1," 30 to 59.9 are "Category 2," and 60 to 100 are "Category 3." Transitional zones exist between "Categories 1 and 2" from 30 to 34.9 and between "Categories 2 and 3" from 60 to 64.9. However, according to the Ohio EPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower Category (Mack, 2001). The ORAM score for the wetland that was delineated is discussed in Section 3.2 of this report.

2.3 Stream and River Crossings

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and "designated uses" to all "Waters of the U.S." upstream to the highest reaches of the tributary streams. In addition, the Clean Water Act (CWA) of 1972 and its 1977 and 1987 amendments require knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high water mark (OHWM). Stream assessments were conducted using the methods described in the Ohio EPA's Methods for Assessing Habitat in Flowing Waters: Using Ohio EPA's Qualitative Habitat Evaluation Index (QHEI) (Rankin, 2006) and Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (HHEI), Version 3 (Davic, 2012).

QHEI: The QHEI method was designed to provide a rapid determination of habitat features that correspond to those physical factors that most affect fish communities and which are generally important to other aquatic life (e.g., macroinvertebrates).

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one square mile (mi^2), if natural pools are greater than 15.75 inches (40 cm) deep, or if the water feature is shown as a blue-line waterway on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the regulated public, the Ohio EPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater (H) streams, i.e., those with a watershed area less than or equal to 20 mi^2 versus large (L) streams, i.e., are those with a watershed area greater than 20 mi^2 . The Narrative Rating System includes: Very Poor (<30 for both H and L streams), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L).

HHEI: Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or “branches”) and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5-minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale, and landscape position (Fritz, et al. 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The headwater habitat evaluation index (HHEI) is a rapid field assessment method for physical habitat that can be used to appraise the biological potential of most Primary Headwater Habitat (PHWH) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a “defined bed and bank, with either continuous or periodically flowing water, with watershed area less than or equal to 1.0 mi^2 (259 ha), and a maximum depth of water pools equal to or less than 15.75 inches (40 cm)” (Davic, 2012).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into “Class 1 PHWH Streams”, 30 to 69.9 are “Class 2 PHWH Streams”, and 70 to 100 are “Class 3 PHWH Streams”. Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the Ohio EPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (Davic, 2012). Evidence of anthropogenic alterations to the natural channel will result in a “Modified” qualifier for the stream.

Class 1 PHWH Streams are those that have “normally dry channels with little or no aquatic life present” (Davic, 2012). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.

Class 2 PHWH Streams are equivalent to “warm-water habitat” streams. This stream class has a “moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis” (Davic, 2012). These species communities are composed of vertebrates (fish and

salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold-water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool-water adapted macroinvertebrates present in the stream continuously (on an annual basis).

3.0 RESULTS

3.1 Special Status Ecological Areas

URS conducted a review of published resources and agency consultations to identify national or state forests and parks designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, wildlife sanctuaries and floodplains crossed by and in the immediate vicinity of the Project. No national forests or parks designated or proposed wilderness areas, national wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, or wildlife sanctuaries were identified within 1,000 feet of the proposed Project.

According to the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) (GIS shapefile), the Project is not located within any 100-year flood zones. The project is entirely located within Flood Zone X, an area with minimal flood hazard. No changes in flood elevations are anticipated as a result of the Project.

3.2 Wetland Assessment

Preliminary Soils Evaluation: According to the *Web Soil Survey* for Monroe County, Ohio (USDA, 2012), Chagrin silt loam is the only mapped soil map unit in the survey area. This map unit is not identified as a hydric soil, although it reportedly contains an approximately 5% proportion that meets the criteria of hydric soils. During the field reconnaissance, URS observed apparent soil fill and grading in the area of the preliminary Blue Racer Station pad location and portions of the 138 kV line relocation. These filled and graded areas appeared to be the result of other natural gas infrastructure and facility construction projects in the immediate vicinity. A photo of the observed disturbance is provided in Attachment A.

National Wetland Inventory Map Review: According to the NWI map of the Summerfield, Ohio quadrangle, the Project area does not include any mapped NWI wetlands.

Wetland Delineation: URS identified one wetland (Wetland 1, Figure 1) within the Project ecological survey area. This wetland is not within the preliminary footprint of the station pad or crossed by the 138 kV line relocation. This Category 1 wetland is classified as a PEM wetland with an ORAM score of 26. This wetland exhibited limited plant community development with a high percentage of invasive species

and characteristically had habitat and hydrology in the early stages of recovering from assumed previous manipulations as a result of mowing, storm water input, nutrient enrichment, or other disturbances.

The location and approximate extent of Wetland 1 as delineated within the Project survey area are shown on Figure 1. A color photograph taken of the wetland is provided in Attachment A. Completed USACE wetland delineation and ORAM forms are provided in Attachment B.

3.3 Stream and River Crossings

Streams within the area corridor are summarized in Table 1 and shown on Figure 1. Two identified streams were assessed using the HHEI methodology (drainage area less than one mi²) and two were assessed using the QHEI methodology (drainage area greater than 1 mi²). The four streams total 2,362 linear feet within the survey area. Two of the streams are crossed by the preliminary 138 kV line relocation. URS has preliminarily determined that the streams appear to be jurisdictional (i.e., "Waters of the U.S."), as they all appear to be tributaries that flow into or combine with other streams. Color photographs were taken of the streams during the field survey and are provided in Attachment A. Stream forms are included in Attachment C.

**TABLE 1
STREAMS IDENTIFIED WITHIN THE SURVEY AREA**

STREAMS IDENTIFIED WITHIN THE SURVEY AREA							
Report Name	Waterbody	Flow Regime	Score	Classification	Bankfull Width (feet)	Maximum Pool Depth (inches)	Length within Survey Area (feet)
Stream 1	Death Run	Perennial	57	WWH	4	28	630*
Stream 2	Clear Fork Little Muskingum	Perennial	67.5	WWH	2	40	1433
Stream 3	Tributary to Clear Fork Little Muskingum	Ephemeral	19	Category 1	1.5	1	54
Stream 4	Tributary to Death Run	Ephemeral	22	Category 1	0.5	0.5	245*
Total: 4							2,362
* Stream is crossed by preliminary 138 kV relocation							

4.0 PONDS

No ponds were identified within the Project survey area.

5.0 SUMMARY

No national forests or parks designated or proposed wilderness areas, National or State Wild and Scenic Rivers, wildlife areas, wildlife refuges, wildlife management areas, or wildlife sanctuaries were identified within 1,000 feet of the proposed Project.

The Project is not located within any 100-year flood zones. The project is entirely located within Flood Zone X, an area with minimal flood hazard. No changes in flood elevations are anticipated as a result of the Project.

During the field survey, one PEM, Category 1 wetland totaling 0.4 acre was identified. This wetland is not within the preliminary station footprint or crossed by the preliminary 138 kV line relocation. Two perennial and two ephemeral streams, totaling 2,362 feet, were assessed. While two of these streams are crossed by the preliminary 138 kV line relocation, no in-water work is proposed.

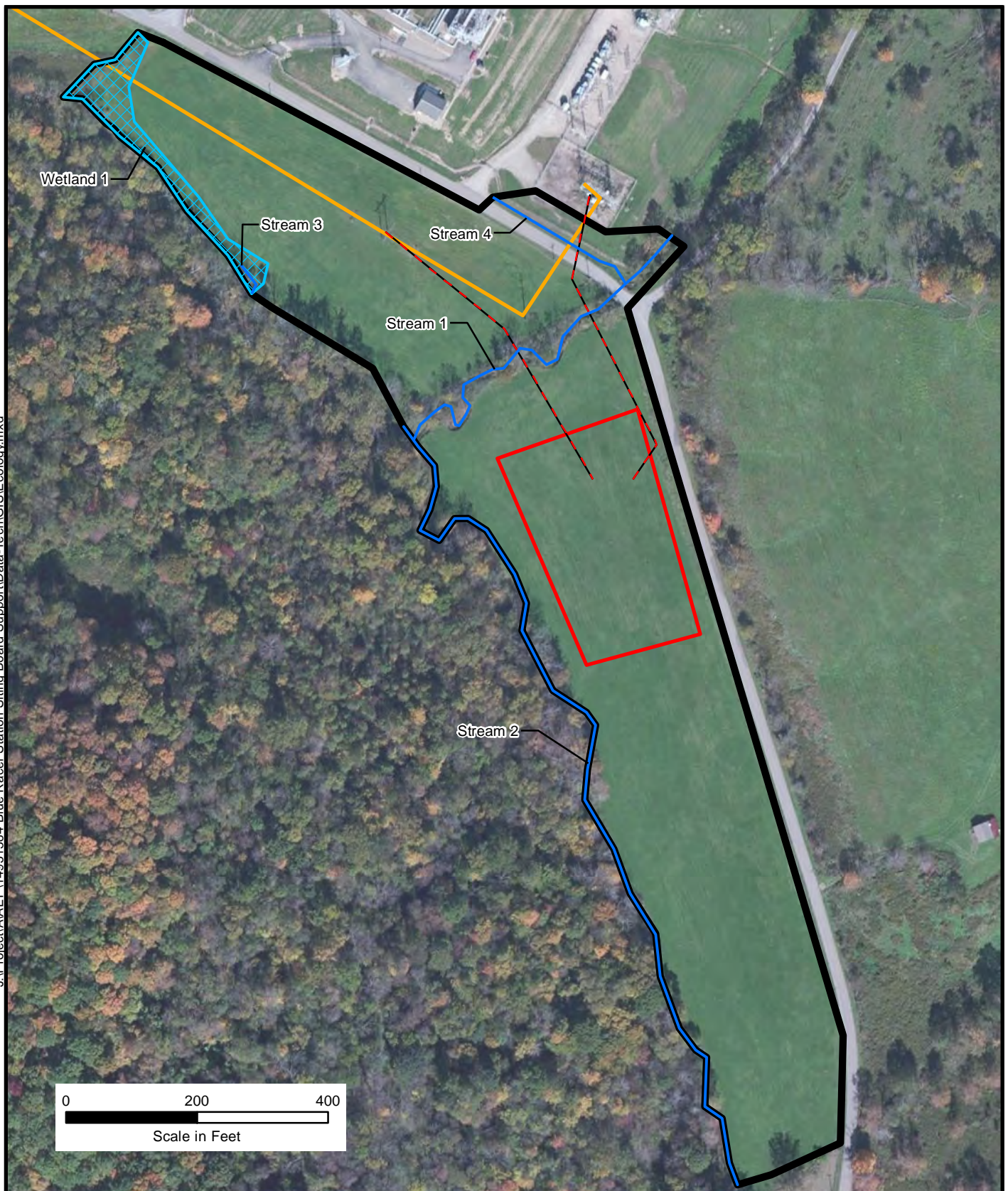
6.0 CONCLUSION

This report will be used to assist AEP Ohio Transco's efforts to avoid special status ecological areas, wetlands, and streams to the extent possible during construction of the Project, thereby minimizing impacts to these features identified within the Project area. Based on the preliminary Project footprint and identified features, no construction activity within streams or wetlands is anticipated. Erosion control methods including silt fencing are expected to be used where appropriate to minimize runoff-related impacts to stream channels. As a consequence, significant impacts to these "Waters of the U.S." are not anticipated. Notification or permit applications under Sections 401 and/or 404 of the Clean Water Act are not expected to be required by either the Ohio EPA or the USACE for this Project.







7.0 REFERENCES

- Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Office of Biological Services, U.S. Fish and Wildlife Service, Washington, D.C.
- Davic, Robert D. 2002. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams. Final Version 1.0*. Ohio Environmental Protection Agency, Division of Surface Water, Columbus, Ohio.
- Environmental Laboratory. 1987. *U.S. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1*, U.S. Army Engineer Waterways Experiment Station: Vicksburg, Mississippi.
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- Mack, John J. 2001. *Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and Scoring Forms*. Ohio EPA Technical Report WET/2001-1. Ohio Environmental Protection Agency, Division of Surface Water, 401/Wetland Ecology Unit, Columbus, Ohio.
- Rankin, Edward T. 2006. *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI)*. Ohio EPA Ecological Assessment Section, Division of Surface Water, Columbus, Ohio.

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LEGEND:

-  Approximate Station Pad
-  Approximate 138 kV Line Relocation
-  Existing 138 kV Transmission Line
-  Ecological Survey Area
-  Delineated Stream
-  Delineated Wetland



Blue Racer Station

FIGURE 1
ECOLOGICAL SURVEY RESULTS

JOB NO.14951384



ATTACHMENT A

PHOTOGRAPHS



PHOTOGRAPHIC RECORD

Streams

Client Name: AEP OHIO TRANSOCO	Site Location: BILE RAGER STATION PROJECT	Project No. 14951384
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Photo No. 1	
Date: March 10, 2014	
Description: Looking east (upstream) along Stream 1 (Death Run). QHEI Stream Perennial Preliminary station pad area was observed to be covered in fill and graded.	

Photo No. 2	
Date: March 10, 2014	
Description: Stream 2 QHEI Stream Facing Upstream Perennial Stream	



PHOTOGRAPHIC RECORD

Streams

Client Name:

AEP OHIO TRANSCO

Site Location:

BILE RAGER STATION PROJECT

Project No.

14951384

Photo No. 3

Date:

March 10, 2014

Description:

Stream 3

HHEI Stream

Facing Downstream

Ephemeral Stream



Photo No. 4

Date:

March 10, 2014

Description:

Stream 4

HHEI Stream

Facing Downstream

Ephemeral Stream





PHOTOGRAPHIC RECORD

Streams

Client Name: AEP OHIO TRANSOCO	Site Location: BLUE RACER STATION PROJECT	Project No. 14951384
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Photo No. 5
Date: March 10, 2014
Description: Wetland 1 PEM Wetland Facing South Category 1



ATTACHMENT B

WETLAND FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Blue River City/County: Monroe County Sampling Date: 3/10/2014
 Applicant/Owner: AEP State: OK Sampling Point: Wetland 1
 Investigator(s): Kason Little, Brian Robertson Section, Township, Range: Franklin
 Landform (hillslope, terrace, etc.): terrace flood plain Local relief (concave, convex, none): none Slope (%): —
 Subregion (LRR or MLRA): — Lat: 39.772901 Long: -81.293350 Datum: NAD 83
 Soil Map Unit Name: Cg Chagrin Silt Loam NWI classification: —
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No — (If no, explain in Remarks.)
 Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes X No —
 Are Vegetation —, Soil —, or Hydrology — naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u>—</u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u>—</u>
Hydric Soil Present? Yes <u>X</u> No <u>—</u>	
Wetland Hydrology Present? Yes <u>X</u> No <u>—</u>	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		Secondary Indicators (minimum of two required) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No <u>—</u> Depth (inches): <u>~3 cm</u> Water Table Present? Yes <u>—</u> No <u>—</u> Depth (inches): <u>—</u> Saturation Present? Yes <u>—</u> No <u>—</u> Depth (inches): <u>—</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u>—</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections); if available:		
Remarks:		

VEGETATION (Five Strata) – Use scientific names of plants.

 Sampling Point: Wetland 1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Sapling Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Herb Stratum (Plot size: _____)				
1. <i>Juncus effusus</i>	10	_____	_____	Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
2. <i>Juncus marginatus</i>	10	_____	_____	
3. <i>Juncus tenuis</i>	5	_____	_____	
4. <i>Cyperus exaltatus</i>	5	_____	_____	
5. <i>Scirpus cyperinus</i>	35	✓	_____	
6. <i>Epilobium coloratum</i>	5	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Remarks: (Include photo numbers here or on a separate sheet.)				

SOIL

Sampling Point: Wetland 1

[illegible]

UPLAND SAMPLE POINT DATA FORM

Sampling Point: wetland 1

SUMMARY OF FINDINGS

Lat: _____	Long: _____
Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes _____ No <u>X</u>

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata? _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC? _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
50% of total cover: _____	20% of total cover: _____			Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Definitions of Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
50% of total cover: _____	20% of total cover: _____			
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. <u>Alnus schoenoprasum</u>	<u>25</u>	<u>1</u>	_____	
2. <u>Hedera pinnatifida</u>	<u>5</u>	_____	_____	
3. <u>Festuca plicator</u>	<u>35</u>	<u>1</u>	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	Remarks:
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
50% of total cover: <u>32.5</u>	20% of total cover: <u>13</u>			
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
50% of total cover: _____	20% of total cover: _____			

HYDROLOGY

Sampling Point: Wetland 1

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of 2 required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ Water Table Present in Pit? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ Saturated Soils Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____		Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	10 YR 3/4	100						
¹ Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains					² Location: PL = Pore Lining, M = Matrix			
HYDRIC SOIL INDICATORS (Check All That Apply)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Dark Surface (S7)			<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)			<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 2 cm of Muck (A10) (LRR N)			<input type="checkbox"/> Redox Dark Surface (F6)					
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 174, 148)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)					
<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)					
<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)					
Restrictive Layer (if observed): Type: _____ Depth (inches): _____					Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Remarks:								

Site: <u>wetland 1</u>	Rater(s): <u>Jason Wutke</u>	Date: <u>3/10/14</u>
------------------------	------------------------------	----------------------

1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

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

8	9
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

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

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

8	17
max 30 pts.	subtotal

Metric 3. Hydrology.

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

- ☐ High pH groundwater (5)
 - ☐ Other groundwater (3)
 - ☒ Precipitation (1)
 - ☒ Seasonal/Intermittent surface water (3)
 - ☐ Perennial surface water (lake or stream) (5)
- 3c. Maximum water depth. Select only one and assign score.
- ☐ >0.7 (27.6in) (3)
 - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
 - ☒ <0.4m (<15.7in) (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)
 - ☐ Between stream/lake and other human use (1)
 - ☐ Part of wetland/upland (e.g. forest), complex (1)
 - ☐ Part of riparian or upland corridor (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ Semi- to permanently inundated/saturated (4)
 - ☐ Regularly inundated/saturated (3)
 - ☒ Seasonally inundated (2)
 - ☐ Seasonally saturated in upper 30cm (12in) (1)

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

- | | |
|---|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> None or none apparent (12) <input type="checkbox"/> Recovered (7) <input type="checkbox"/> Recovering (3) <input checked="" type="checkbox"/> Recent or no recovery (1) | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input checked="" type="checkbox"/> stormwater input <input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other _____ |
|---|--|

8	25
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

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

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

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

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

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

- | | |
|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> None or none apparent (9) <input type="checkbox"/> Recovered (6) <input checked="" type="checkbox"/> Recovering (3) <input type="checkbox"/> Recent or no recovery (1) | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants <input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input checked="" type="checkbox"/> nutrient enrichment |
|--|---|

25
subtotal this page

Site: <u>Wetland 1</u>	Rater(s):	Date:
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25

subtotal first page

0	25
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1	26
max 20 pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Shrub
- ☐ Forest
- ☐ Mudflats
- ☐ Open water
- ☐ Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

26

End of Quantitative Rating. Complete Categorization Worksheets.

ATTACHMENT C

STREAM FORMS



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **57**

Stream & Location: Stream 1 (Death Run) RM: Date: 3/10/14

Scorers Full Name & Affiliation: Jason Wattle UPS Corp
River Code: STORET #: Lat./ Long.: / 8 Office verified location ☐

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

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
	POOL RIFFLE		POOL RIFFLE				
<input type="checkbox"/> BLDR / SLABS [10]		<input type="checkbox"/> HARDPAN [4]		<input type="checkbox"/> LIMESTONE [1]		<input type="checkbox"/> HEAVY [-2]	Substrate <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; text-align: center; line-height: 40px;">10</div> <div>Maximum 20</div>
<input type="checkbox"/> BOULDER [9]	<u>3</u>	<input type="checkbox"/> DETRITUS [3]	<u>5</u>	<input type="checkbox"/> TILLS [1]		<input checked="" type="checkbox"/> MODERATE [-1]	
<input checked="" type="checkbox"/> COBBLE [8]	<u>15</u> <u>40</u>	<input type="checkbox"/> MUCK [2]	<u>10</u>	<input checked="" type="checkbox"/> WETLANDS [0]	SILT	<input type="checkbox"/> NORMAL [0]	
<input type="checkbox"/> GRAVEL [7]	<u>2</u> <u>30</u>	<input checked="" type="checkbox"/> SILT [2]	<u>60</u>	<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> FREE [1]	
<input type="checkbox"/> SAND [6]	<u>5</u> <u>10</u>	<input type="checkbox"/> ARTIFICIAL [0]		<input type="checkbox"/> SANDSTONE [0]		<input type="checkbox"/> EXTENSIVE [-2]	
<input type="checkbox"/> BEDROCK [5]				<input type="checkbox"/> RIP/RAP [0]		<input checked="" type="checkbox"/> MODERATE [-1]	
(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> LACUSTURINE [0]	EMBEDDEDNESS	<input type="checkbox"/> NORMAL [0]	
NUMBER OF BEST TYPES: <input checked="" type="checkbox"/> 4 or more				<input type="checkbox"/> SHALE [-1]		<input type="checkbox"/> NONE [1]	
<input type="checkbox"/> 3 or less [0]				<input type="checkbox"/> COAL FINES [-2]			

Comments

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

		AMOUNT	
		Check ONE (Or 2 & average)	
<u>1</u> UNDERCUT BANKS [1]	<u>1</u> POOLS > 70cm [2]	<u>0</u> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE >75% [11]
<u>2</u> OVERHANGING VEGETATION [1]	<u>0</u> ROOTWADS [1]	<u>0</u> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]
<u>0</u> SHALLOWS (IN SLOW WATER) [1]	<u>1</u> BOULDERS [1]	<u>1</u> LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]
<u>0</u> ROOTMATS [1]			<input type="checkbox"/> NEARLY ABSENT <5% [1]

Comments

Cover
Maximum 20

9

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input checked="" type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input checked="" type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input checked="" type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

Channel
Maximum 20

17

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

River right looking downstream		RIPARIAN WIDTH		FLOOD PLAIN QUALITY			
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]				
<input checked="" type="checkbox"/> MODERATE [2]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]				
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input checked="" type="checkbox"/> MINING / CONSTRUCTION [0]				
	<input checked="" type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]					
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]					

Comments

Indicate predominant land use(s) past 100m riparian.
Riparian
Maximum 10

3.5

5] **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)		Check ONE (Or 2 & average)		Check ALL that apply		
<input type="checkbox"/> > 1m [6]	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input checked="" type="checkbox"/> SLOW [1]			Pool / Current Maximum 12 <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; text-align: center; line-height: 40px;">8</div>
<input checked="" type="checkbox"/> 0.7-<1m [4]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]			
<input checked="" type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]			
<input type="checkbox"/> 0.2-<0.4m [1]		<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]			
<input type="checkbox"/> < 0.2m [0]		Indicate for reach - pools and riffles.				

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average).		NO RIFFLE [metric=0]	
RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input checked="" type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input checked="" type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]

Comments

Riffle / Run
Maximum 8

3.5

6] GRADIENT (ft/mi)		%POOL: <u>40</u>		%GLIDE: <u>20</u>		Gradient Maximum 10 <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; text-align: center; line-height: 40px;">6</div>
DRAINAGE AREA (mi ²)		%RUN: <u>15</u>		%RIFFLE: <u>25</u>		
<input type="checkbox"/> VERY LOW - LOW [2-4]	<input type="checkbox"/> VERY LOW - LOW [2-4]					
<input checked="" type="checkbox"/> MODERATE [6-10]	<input checked="" type="checkbox"/> MODERATE [6-10]					
<input type="checkbox"/> HIGH - VERY HIGH [10-6]	<input type="checkbox"/> HIGH - VERY HIGH [10-6]					

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT ☐ WADE ☐ 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 ☐

CLARITY

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

meters

CANOPY

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

CJ RECREATION

AREA DEPTH POOL: ☐ >100ft² ☐ >3ft

BJ AESTHETICS

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

DJ MAINTENANCE

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

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY ☐ HARDENED / URBAN / DIRT&GRIME ☐ CONTAMINATED / LANDFILL ☐ BMPs-CONSTRUCTION-SEDIMENT ☐ LOGGING / IRRIGATION / COOLING ☐ BANK / EROSION / SURFACE ☐ FALSE BANK / MANURE / LAGOON ☐ WASH H₂O / TILE / H₂O TABLE ☐ ACID / MINE / QUARRY / FLOW ☐ NATURAL / WETLAND / STAGNANT ☐ PARK / GOLF / LAWN / HOME ☐ ATMOSPHERE / DATA PAUCITY ☐

FJ MEASUREMENTS

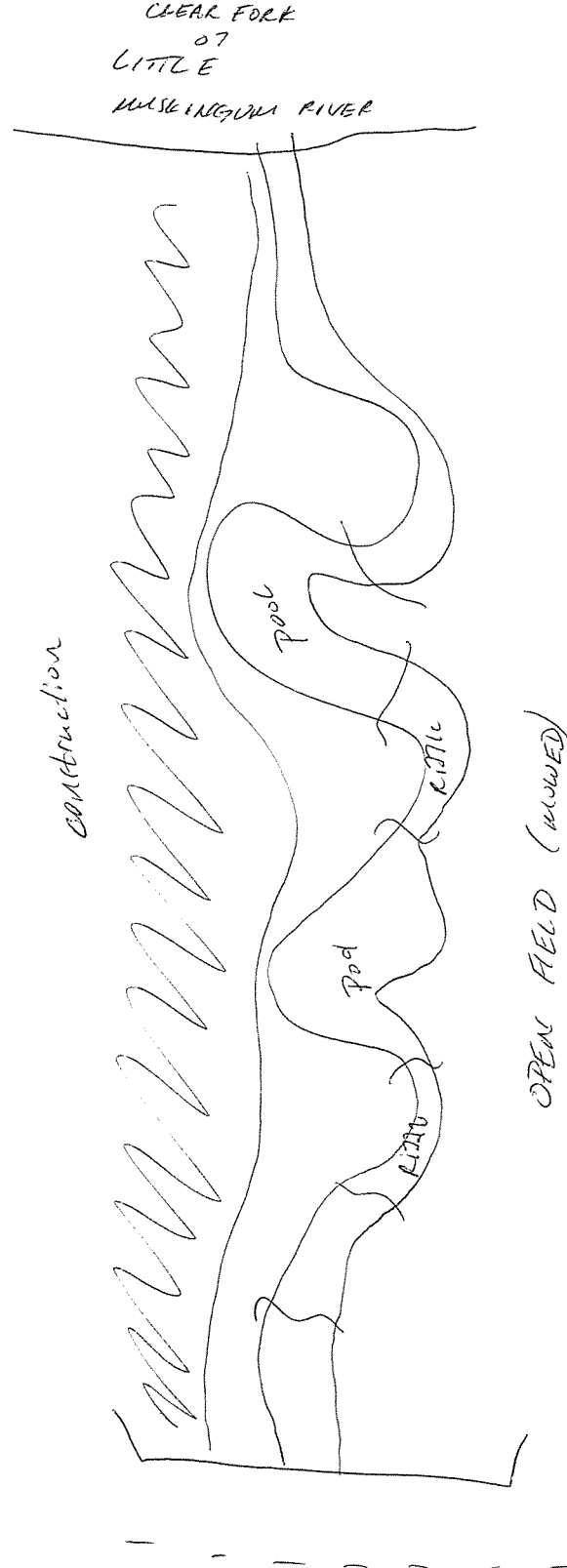
- \bar{x} width ☐ \bar{x} depth ☐ max. depth ☐ \bar{x} bankfull width ☐ bankfull \bar{x} depth ☐ W/D ratio ☐ bankfull max. depth ☐ floodprone \bar{x}^2 width ☐ entrench. ratio ☐

Legacy Tree:

Stream Drawing:

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

Stream is consistent re: sampled reach. However, recent construction adjacent to L Bank is representative only of sampled reach





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **67.5**

Stream & Location: Stream 2 (Upper Fork Little Muskingum) RM: Date: 3/10/14

Scorers Full Name & Affiliation: Joseph W. Little, LLC Corporation
River Code: STORET #: Lat./Long.: 18 Office verified location ☐

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

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
<input type="checkbox"/> BLDR /SLABS [10]	<input type="checkbox"/> POOL RIFFLE	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> POOL RIFFLE	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> SILT	<input type="checkbox"/> HEAVY [-2]	<div>Substrate 10 Maximum 20</div>
<input type="checkbox"/> BOULDER [9]	<u>5</u> <u>20</u>	<input type="checkbox"/> DETRITUS [3]	<u>2</u>	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> EMBEDDEDNESS	<input checked="" type="checkbox"/> MODERATE [-1]	
<input checked="" type="checkbox"/> COBBLE [8]	<u>15</u> <u>35</u>	<input type="checkbox"/> MUCK [2]		<input checked="" type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> NORMAL [0]	
<input type="checkbox"/> GRAVEL [7]	<u>20</u> <u>25</u>	<input checked="" type="checkbox"/> SILT [2]	<u>40</u>	<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> FREE [1]	
<input type="checkbox"/> SAND [6]	<u>18</u>	<input type="checkbox"/> ARTIFICIAL [0]		<input type="checkbox"/> SANDSTONE [0]		<input checked="" type="checkbox"/> EXTENSIVE [-2]	
<input type="checkbox"/> BEDROCK [5]				<input type="checkbox"/> RIP/RAP [0]		<input checked="" type="checkbox"/> MODERATE [-1]	

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

Comments

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

			AMOUNT	
<u>1</u> UNDERCUT BANKS [1]	<u>1</u> POOLS > 70cm [2]	<u>2</u> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE >75% [11]	<div>Cover Maximum 20 11</div>
<u>2</u> OVERHANGING VEGETATION [1]	<u>1</u> ROOTWADS [1]	<u>0</u> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]	
<u>1</u> SHALLOWS (IN SLOW WATER) [1]	<u>1</u> BOULDERS [1]	<u>1</u> LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]	
<u>0</u> ROOTMATS [1]			<input type="checkbox"/> NEARLY ABSENT <5% [1]	

Comments

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input checked="" type="checkbox"/> HIGH [4]	<input checked="" type="checkbox"/> EXCELLENT [7]	<input checked="" type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

Channel
Maximum
20
19

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

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE	
<input type="checkbox"/> NONE / LITTLE [3]	<input checked="" type="checkbox"/> MODERATE [2]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]
<input type="checkbox"/> HEAVY / SEVERE [1]		<input checked="" type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> FENCED PASTURE [1]	Indicate predominant land use(s) past 100m riparian.	
		<input type="checkbox"/> NONE [0]		<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]		Riparian Maximum 10 5.5	

Comments

5] **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply				
<input checked="" type="checkbox"/> > 1m [6]	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	<input checked="" type="checkbox"/> SLOW [1]			<div>Pool / Current Maximum 12 11</div>
<input type="checkbox"/> 0.7-<1m [4]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]			
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]			
<input type="checkbox"/> 0.2-<0.4m [1]		<input checked="" type="checkbox"/> MODERATE [1]	<input checked="" type="checkbox"/> EDDIES [1]			

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH		RUN DEPTH		RIFFLE / RUN SUBSTRATE		RIFFLE / RUN EMBEDDEDNESS	
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input checked="" type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> NONE [2]	<input checked="" type="checkbox"/> LOW [1]	<div>Riffle / Run Maximum 8 5</div>	
<input checked="" type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]		<input type="checkbox"/> MODERATE [0]	<input type="checkbox"/> EXTENSIVE [-1]		
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]							

Comments

6] **GRADIENT** (ft/mi) ☐ VERY LOW - LOW [2-4] ☒ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]
DRAINAGE AREA (mi²)
%POOL: 40 %GLIDE: 20 %RUN: 15 %RIFFLE: 25
Gradient Maximum 10 **6**

AJ SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
☐ WADE
☐ L. LINE
☐ OTHER

DISTANCE

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

CLARITY

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

meters

CANOPY

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

CJ RECREATION

AREA DEPTH
 POOL: ☐ > 100ft² ☐ > 3ft

Stream Drawing:

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

Bank disturbed by recent construction in riparian buffer

EJ ISSUES		FJ MEASUREMENTS	
WWTP / CSO / NPDES / INDUSTRY	Circle some & COMMENT	\bar{x} width	
HARDENED / URBAN / DIRT & GRIME		\bar{x} depth	
CONTAMINATED / LANDFILL		max. depth	
BMPs-CONSTRUCTION-SEDIMENT		\bar{x} bankfull width	
LOGGING / IRRIGATION / COOLING		bankfull \bar{x} depth	
BANK / EROSION / SURFACE		W/D ratio	
FALSE BANK / MANURE / LAGOON		bankfull max. depth	
WASH H ₂ O / TILE / H ₂ O TABLE		floodprone \bar{x}^2 width	
ACID / MINE / QUARRY / FLOW		entrench. ratio	
NATURAL / WETLAND / STAGNANT		Legacy Tree:	
PARK / GOLF / LAWN / HOME			
ATMOSPHERE / DATA PAUCITY			

BJ AESTHETICS

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

DJ MAINTENANCE

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

Recent construction





Primary Headwater Habitat Evaluation Form

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

19

SITE NAME/LOCATION Blue Racer

SITE NUMBER Stream 3

RIVER BASIN _____

DRAINAGE AREA (mi²) < 0.001

LENGTH OF STREAM REACH (ft) 65

LAT. _____

LONG. _____

RIVER CODE _____

RIVER MILE _____

DATE 3/10/2014

SCORER J. Whittle

COMMENTS _____

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

STREAM CHANNEL MODIFICATIONS:

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input checked="" type="checkbox"/> SILT [3 pt]	<u>95</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<u>3</u>
<input type="checkbox"/> BEDROCK [16 pt]	_____	<input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<u>2</u>	<input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

(A)

Substrate Percentage Check 100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points

Substrate Max = 40

9

A + B

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

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30

5

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): 5

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS _____

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS _____

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: _____ Township / City: _____

MISCELLANEOUS

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

Photograph Information: _____

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) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

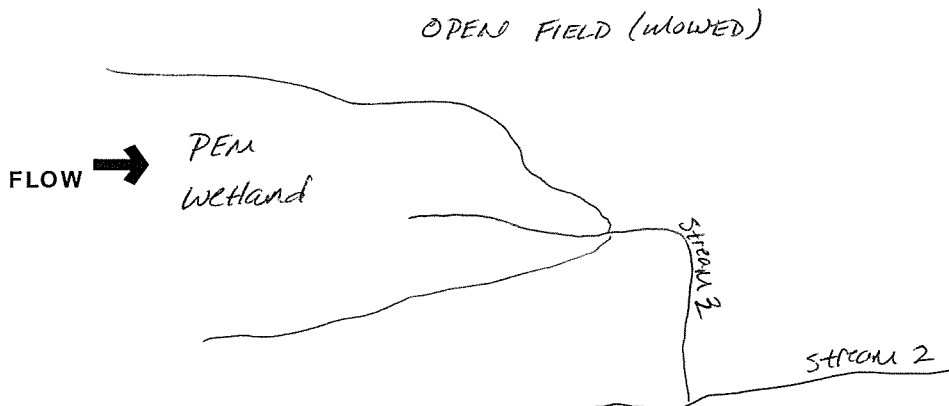
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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





Primary Headwater Habitat Evaluation Form

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

22

SITE NAME/LOCATION Blue Race

SITE NUMBER Stream 4

RIVER BASIN _____

DRAINAGE AREA (mi²) <0.01

LENGTH OF STREAM REACH (ft) _____

LAT. _____

LONG. _____

RIVER CODE _____

RIVER MILE _____

DATE 3/10/2014

SCORER J. Wittle

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 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE

☐ ☐
☐ ☐
☐ ☐
☐ ☐
☐ ☐
☐ ☒

BLDR SLABS [16 pts]

BOULDER (>256 mm) [16 pts]

BEDROCK [16 pt]

COBBLE (65-256 mm) [12 pts]

GRAVEL (2-64 mm) [9 pts]

SAND (<2 mm) [6 pts]

PERCENT

4
6

TYPE

☒ ☐
☐ ☐
☐ ☐
☐ ☐
☐ ☐
☐ ☐

SILT [3 pt]

LEAF PACK/WOODY DEBRIS [3 pts]

FINE DETRITUS [3 pts]

CLAY or HARDPAN [0 pt]

MUCK [0 pts]

ARTIFICIAL [3 pts]

PERCENT

90

Total of Percentages of

Bldr Slabs, Boulder, Cobble, Bedrock 0

(A)

Substrate Percentage

Check 100

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9

TOTAL NUMBER OF SUBSTRATE TYPES: 3

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

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 (> 9' 7" - 4' 8") [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

HHEI Metric Points

Substrate
Max = 40

12

A + B

Pool Depth
Max = 30

5

Bankfull
Width
Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH

L R

(Per Bank)

☐ ☐

Wide >10m

☐ ☐

Moderate 5-10m

☒ ☒

Narrow <5m

☐ ☐

None

COMMENTS _____

FLOODPLAIN QUALITY

L R

(Most Predominant per Bank)

☐ ☐

Mature Forest, Wetland

☐ ☐

Immature Forest, Shrub or Old

Field

☐ ☐

Residential, Park, New Field

☐ ☐

Fenced Pasture

L R

☐ ☐

Conservation Tillage

☒ ☒

Urban or Industrial

☐ ☐

Open Pasture, Row Crop

☐ ☐

Mining or Construction

COMMENTS _____

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

☐

Stream Flowing

☐

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):

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

County: _____ Township / City: _____

MISCELLANEOUS

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

Photograph Information: _____

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) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

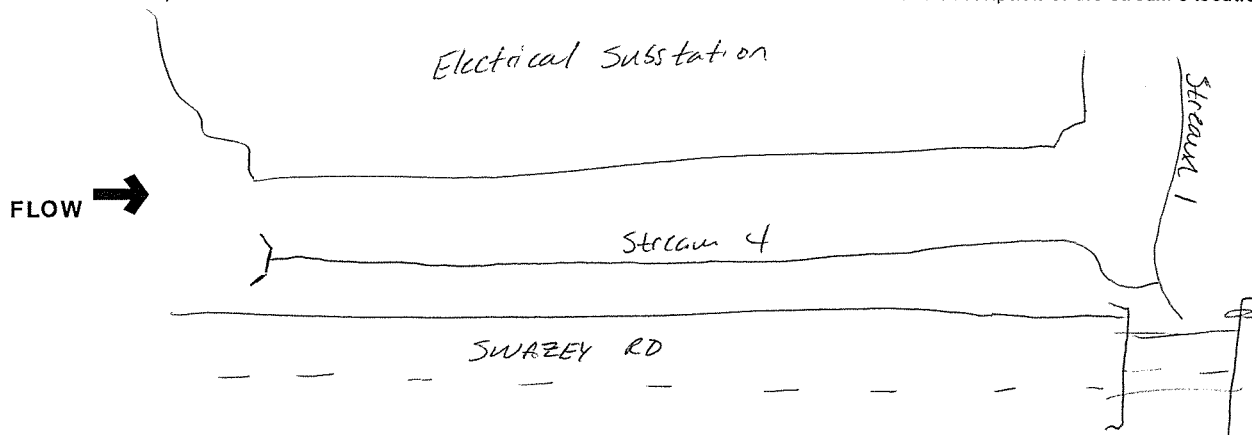
Performed? (Y/N): _____ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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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



This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

4/16/2014 8:59:30 AM

in

Case No(s). 14-0530-EL-BLN

Summary: Application In the Matter of the Letter of Notification for the Summerfield – Texas Eastern Berne 138 KV Transmission Line Relocation and Installation of the Blue Racer Station Project electronically filed by Mr. Yazen Alami on behalf of AEP Ohio Transmission Company