



Legal Department

American Electric Power

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Columbus, OH 43215
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Erin C. Miller

Contract Attorney

(614) 716-1637 PHONE
(614) 716-2975 FAX
(614) 230-9078 CELL

The Honorable Todd A. Snitchler, Chairman
Ohio Power Siting Board
180 East Broad Street
Columbus, Ohio 43215

August 3, 2012

RE: **Letter of Notification**
Case No. 12-2216-EL-BNR Marysville Station Expansion

Dear Chairman Snitchler:

In accordance with Rules 4906-5-02 and 4906-11-01, Ohio Administrative Code ("OAC"), AEP Ohio Transmission Company ("AEP Transco") submits this Letter of Notification for expedited approval. Please find attached a copy of Check #0109 in the amount of \$2,000 for the expedited application processing fee. The requested state date of construction is October 1, 2012. This project is scheduled to be complete on the December 1, 2012.

As required by Rule 4906-11-01(D)(4), AEP has submitted a copy of this 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. Please find attached copies of cover letters that have been submitted to the Union County Commissioners and the Taylor Township Trustees. Please also find attached copies of reports received from CH2M HILL.

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

Respectfully Submitted,

//s/ Erin C. Miller
Erin C. Miller, Counsel

Attachments



GARY L LEWIS
TRANSMISSION ROW
700 MORRISON RD
GAHANNA, OH 43230

7089001124505

0109
2-1/710

8/1/2012

PAY TO THE ORDER OF

Ohio Power Siting Board

\$ 2000.00

Two Thousand & ⁰⁰/₁₀₀

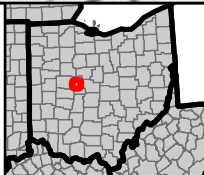
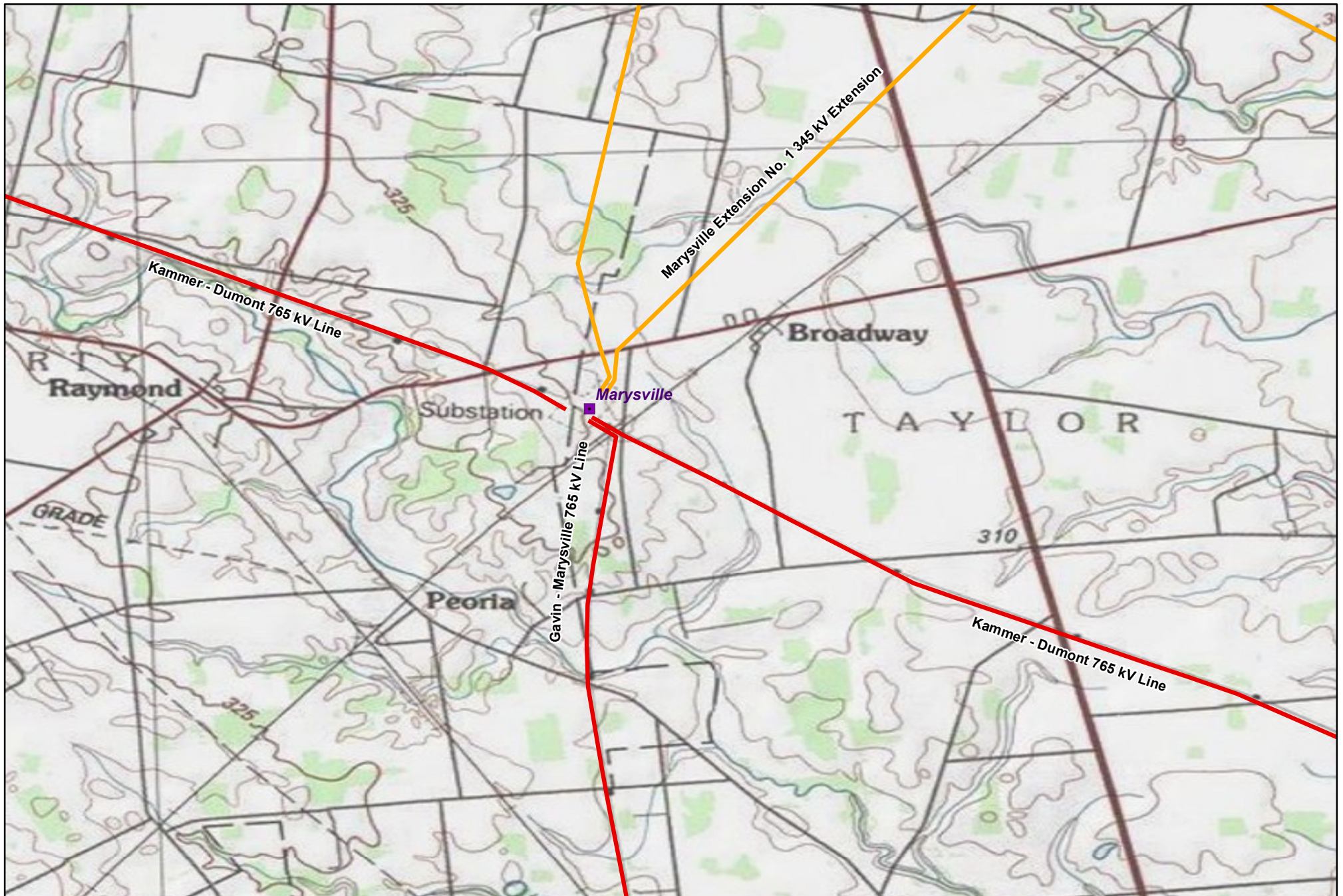
DOLLARS

JPMorganChase
CHICAGO, ILLINOIS 60676

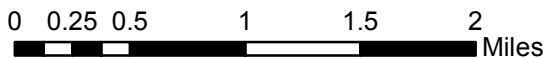
Marysville Sub.
Wet # 41617151

Gary L. Lewis

⑆071000013⑆ 9026851⑈ 0109



MAP 1



**Marysville Station and
Surrounding Transmission Lines**

Transmission Line Engineering Group

Source: American Electric Power, ESRI
Projection:
Comments:

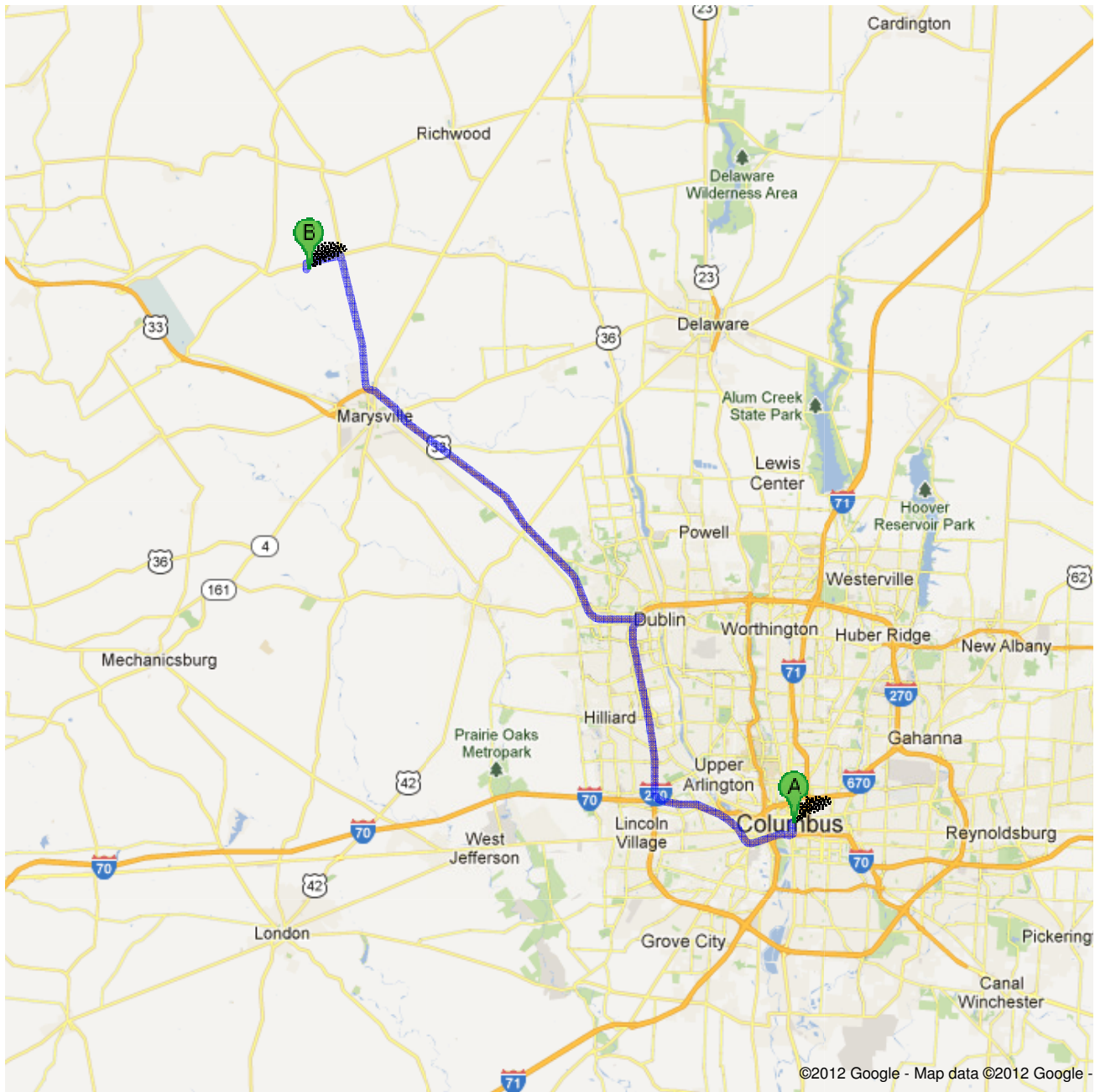
Drawn By:
Date:
Approved By:

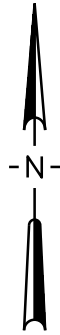
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Directions to Reed Rd
42.1 mi – about 53 mins
40.332799, -83.429909

MAP 2

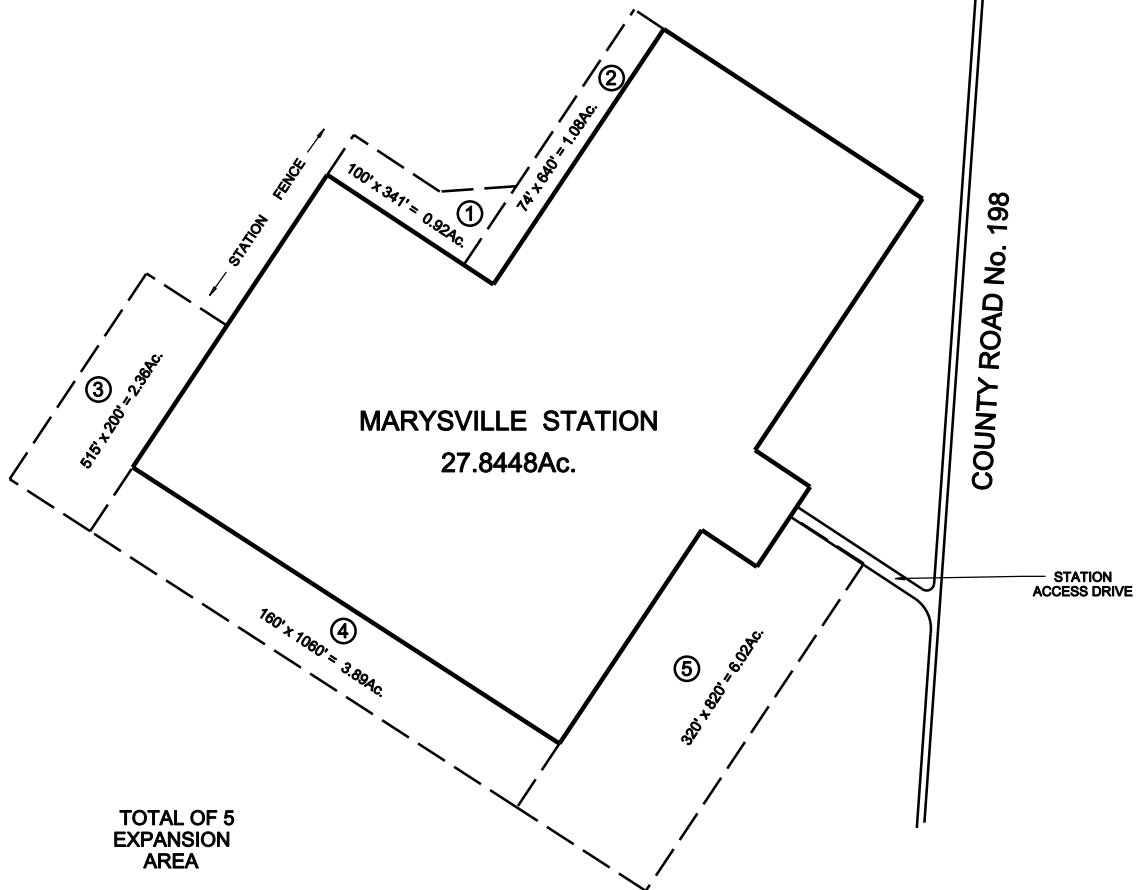




scale 1" = 400'

UNION COUNTY
TAYLOR TOWNSHIP

To State Route 347



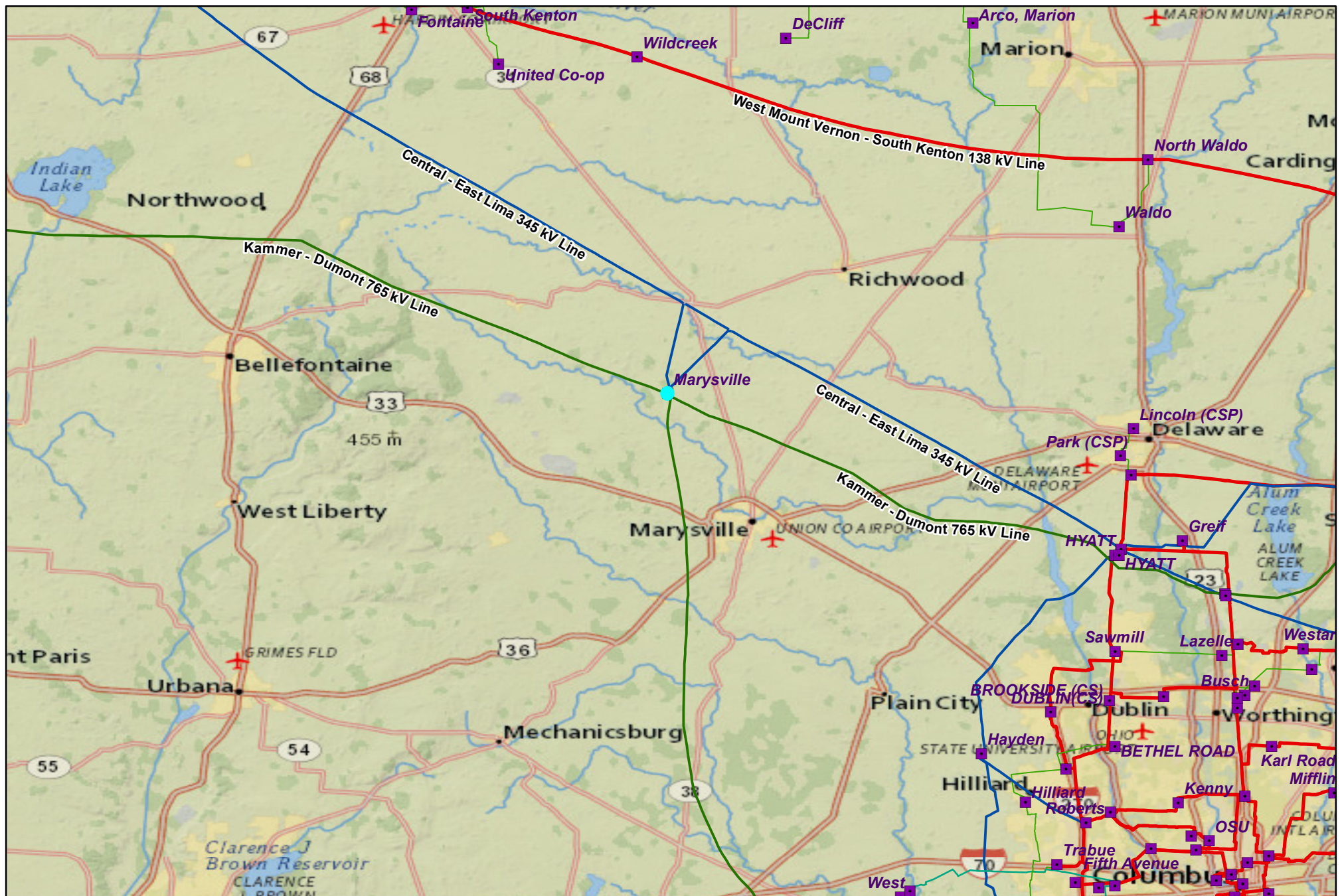
MARYSVILLE STATION
22000 COUNTY ROAD 198
MARYSVILLE, OHIO. 43040

83.4301° LONGITUDE
40.3329° LATITUDE

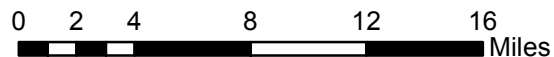
MAP 3

MARYSVILLE
STATION





MAP 4



OHIO MAP

Transmission Line Engineering Group

Source: American Electric Power, ESRI
Projection:
Comments:

Drawn By:
Date:
Approved By:

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American Electric Power
700 Morrison Road
Gahanna, OH 43230

August 2, 2012

Union County Commissioners
Gary Lee
Charles Hall
Steve Stolte
233 West 6th Street
Marysville, OH 43040

**Letter of Notification
Marysville Station Expansion Project**

Dear Commissioners:

In accordance with Chapter 4906 of the Ohio Administrative Code, American Electric Power is required to submit a Letter of Notice to the State of Ohio Power Siting Board whenever a change is made to our transmission facilities.

American Electric Power is planning to expand the existing Marysville Station located in Taylor Township, Union County, Ohio.

In compliance with Rule 4906-11-01 of the OPSB Rules and Regulations, we have prepared and filed the attached Letter of Notice. This Notice contains details on the station expansion and is submitted for your information.

Cordially,

A handwritten signature in blue ink, which appears to read "Tram Trinh", is positioned below the word "Cordially,".

Tram Trinh
Transmission Line Engineering



American Electric Power
700 Morrison Road
Gahanna, OH 43230

August 2, 2012

Taylor Township Trustees
Guy Lewis Green
Ronald Steele John Marshall

c/o
Tina Marshall – Fiscal Officer
19449 Wheeler Green Road
Marysville, OH 43040

**Letter of Notice
Marysville Station Expansion**

Dear Trustees:

In accordance with Chapter 4906 of the Ohio Administrative Code, American Electric Power is required to submit a Letter of Notice to the State of Ohio Power Siting Board whenever a change is made to our transmission facilities.

American Electric Power is planning to expand the existing Marysville Station located in Taylor Township, Union County, Ohio.

In compliance with Rule 4906-11-01 of the OPSB Rules and Regulations, we have prepared and filed the attached Letter of Notice. This Notice contains details on the station expansion and is submitted for your information.

Cordially,

A handwritten signature in blue ink, which appears to read "Tram Trinh", is positioned below the word "Cordially,".

Tram Trinh
Transmission Line Engineering



CH2M HILL
10123 Alliance Road
Suite 300
Cincinnati, OH 45242
Tel 513.530.5520
Fax 513.530.5541

July 31, 2012

John Heppner
American Electric Power
700 Morrison Road
Gahanna, OH 45230

Subject: Marysville Substation Expansion Project, Union County, Ohio
Site Reconnaissance Report

Dear Mr. Heppner:

This Site Reconnaissance Report (Report) summarizes the results of the wetland and waterbody delineation field surveys conducted on July 11, 2012, by CH2M HILL on behalf of American Electric Power (AEP) for the Marysville Substation Expansion Project (the Project; Appendix A) in Union County, Ohio. AEP is proposing the expansion Project to minimize outages and improve safety at the Marysville Substation. The proposed 14.38-acre Project area is an expansion of the existing Marysville Substation 27.8-acre footprint. The purpose of this report was to assess the presence or absence of wetlands or other waters that may be affected by the proposed Project, and to assess general ecological conditions within the Project area.

BACKGROUND INFORMATION

Before conducting the site reconnaissance, CH2M HILL reviewed the following resources to identify the potential locations and extent of wetlands and waterbodies within the Project area:

- United States Geological Survey (USGS) topographic map;
- Aerial photographs (Bing maps);
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey;
- USGS National Hydrography Dataset (NHD-mapped streams); and
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps.

The USGS topographic map (Appendix A, Figure 1) and NHD-mapped streams dataset (Appendix A, Figure 4), which identify intermittent and perennial streams, did not identify mapped streams within the Project area.

A review of recent aerial photography of the Project area (Appendix A, Figure 2) shows that surrounding land use is dominated by agriculture with smaller portions of mowed lawn, old field, and forested vegetation.

The USDA NRCS Web Soil Survey shows two soil series and three soil unit types within the Project area (Appendix A, Figure 3). There are no mapped hydric soils within the Project area; however, all of the mapped soils are identified as those with hydric inclusions (partially hydric). Generally, hydric soils are those soils that indicate through their color that they have experienced dominantly reducing (i.e. oxygen poor) conditions. Oxygen-poor conditions result from inundation by water.

NWI maps are used as a guide along with other data to indicate the potential for wetlands to be present. The information is often dated, and only sporadically field checked. The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The NWI map indicated one feature within the Project area (Appendix A, Figure 4). This feature is identified as palustrine, unconsolidated bottom, intermittently exposed, excavated (PUBGx). This feature corresponds to the location of an on-site stormwater retention pond and is not considered a jurisdictional wetland.

Appendix A contains a series of project figures including a USGS topographic map (Figure 1), a site overview map showing relevant boundaries and delineated wetlands and waterbodies (Figure 2), a USDA NRCS soils map (Figure 3), and NWI and NHD map (Figure 4). Appendix B contains photographic documentation of the delineated wetlands and waterbodies and on-site vegetative communities. Appendix C contains United States Army Corps of Engineers (USACE) wetland determination data forms and Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method version 5.0 (ORAM) scoring forms. Appendix D contains the OEPA Headwater Habitat Evaluation Index (HHEI) datasheets that were completed for the streams identified.

METHODOLOGY

The Project area totalled approximately 14.38 acres. Wetlands and waterbodies were delineated within the Project area to identify potential resource areas that may be impacted, in accordance with applicable federal and state regulations and guidance. Wetland boundaries were field-delineated according to the routine onsite methodology described in the 2010 USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Version 2.0).

The outer boundaries of each wetland and waterbody within the Project area were delineated and recorded using a Global Positioning System (GPS) unit to sub-meter accuracy. For water bodies identified within the Project area, the ordinary high water mark (OHWM) was recorded as the jurisdictional boundary. As wetland and waterbody features were collected, they were each assigned a unique feature identification (ID). Wetland delineation data was reported on the Regional Supplement wetland determination data forms and the OEPA ORAM scoring form. Stream data was reported in the OEPA HHEI datasheets.

VEGETATIVE COMMUNITIES

Areas of old field vegetation occur throughout the Project area. These areas are comprised of upland plants typical of such habitats, including goldenrod (*Solidago* sp.), common teasel (*Dipsacus fullonum*), Queen Anne's lace (*Daucus carota*), chicory (*Cichorium intybus*), fescue (*Festuca* sp.), Indian hemp (*Apocynum cannabinum*), poison ivy (*Toxicodendron radicans*), big-rooted morning glory (*Ipomoea pandurata*), curly dock (*Rumex crispus*), red clover (*Trifolium pratense*), broomsedge (*Andropogon virginicus*), dandelion (*Taraxacum officinale*), daisy fleabane (*Erigeron annuus*), common ragweed (*Ambrosia artemisiifolia*), common milkweed (*Asclepias syriaca*), crownvetch (*Coronilla* sp.), and Virginia strawberry (*Fragaria virginiana*). Upland shrubs including black locust (*Robinia pseudoacacia*), autumn

olive (*Elaeagnus umbellata*), Allegheny blackberry (*Rubus allegheniensis*), green ash (*Fraxinus pennsylvanica*), and eastern red cedar (*Juniperus virginiana*) were also identified.

Agricultural fields were identified within the eastern portion of the Project area, and most were recently planted with corn (*Zea mays*).

Upland forest is located within the western portion of the Project area. The canopy was dominated by eastern cottonwood (*Populus deltoides*) and the sub-canopy was dominated by green ash, common hackberry (*Celtis occidentalis*), and sugar maple (*Acer saccharum*). Herbaceous vegetation was dominated by teasel, fescue, Queen Anne's lace, poison ivy, and Virginia strawberry.

Site photographs documenting vegetation communities and land use within the Project area and its vicinity are included in Appendix B.

WETLANDS AND WATERBODIES

One, 0.09 acre wetland (Wetland 1) was identified in the western portion of the Project area (Appendix A, Figure 2). Based on the OEPA ORAM score of 24, this wetland was classified as a Category 1 wetland (Mack 2001). CH2M HILL classified Wetland 1 as palustrine scrub-shrub (PSS)/palustrine emergent (PEM) per the Cowardin system of classification (Cowardin et al., 1979). The wetland vegetation is dominated by black willow (*Salix nigra*), broadleaf cattail (*Typha latifolia*), and riverbank grape (*Vitis riparia*). CH2M HILL has assumed this feature to be jurisdictional.

One approximately 0.10-acre stormwater retention pond was identified in the northern portion of the Project area within the fenceline of the existing substation (Appendix A, Figure 2).

One ephemeral stream was identified within the eastern portion of the Project area. Stream 1 originates from a stormwater culvert associated with the existing substation. It begins as a non-jurisdictional stormwater conveyance (SWC-1) as it flows along the existing substation fenceline before becoming a stream and flowing northeast through an agricultural field/old field followed by flowing off-site below a railroad (Appendix A, Figure 2). This stream appears to be a tributary of Mill Creek. Approximately 450 linear feet of Stream 1 was identified within the Project area. Stream 1 is characterized by an average width at the ordinary high water mark (OHWM) of approximately 2 to 3 feet. During the site visit, Stream 1 contained no flowing water but isolated pools with approximately 3 to 4 inches of water were observed. The substrate of Stream 1 consisted primarily of cobble and silt.

Another non-jurisdictional stormwater conveyance (SWC-2) originates from a stormwater culvert associated with the existing substation, and flows along the existing substation fenceline before flowing into Stream 1 (Appendix A, Figure 2). Approximately 128 linear feet of SWC-2 was identified within the Project area. SWC-2 is characterized by an average width at the OHWM of approximately 2 to 3 feet. During the site visit, SWC-2 contained no flowing water but isolated pools with approximately 3 to 4 inches of water were observed. The substrate of SWC-2 consisted primarily of cobble and silt.

CONCLUSION

This letter report summarizes the results of a wetland and waterbody delineation conducted by CH2M HILL within the AEP Marysville Substation Expansion Project area in Union County, Ohio on July

John Heppner

Page 4


July 31, 2012

11, 2012. CH2M HILL identified one wetland (0.09-acre), one pond (0.10-acre) and one ephemeral stream (450 linear feet) within the Project area.

We appreciate the opportunity to assist AEP with this Project. If you have questions, please feel free to call John Hurd at (513) 587-7158.

Sincerely,

CH2M HILL



Maggie Vuturo Bosiljevac
Environmental Scientist



John Hurd
Project Manager

Attachments: Appendix A – Figures
Appendix B – Site Photographs
Appendix C – Wetland Datasheets
Appendix D – Stream Datasheets

|

REFERENCES

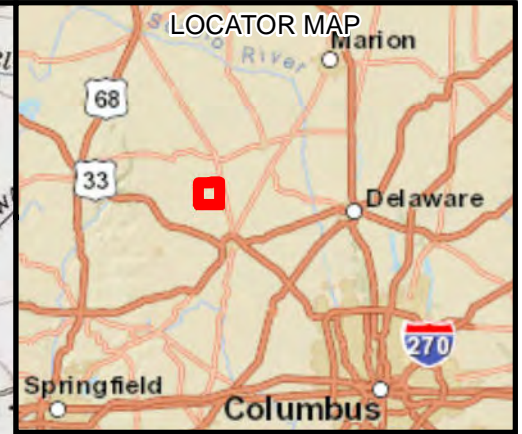
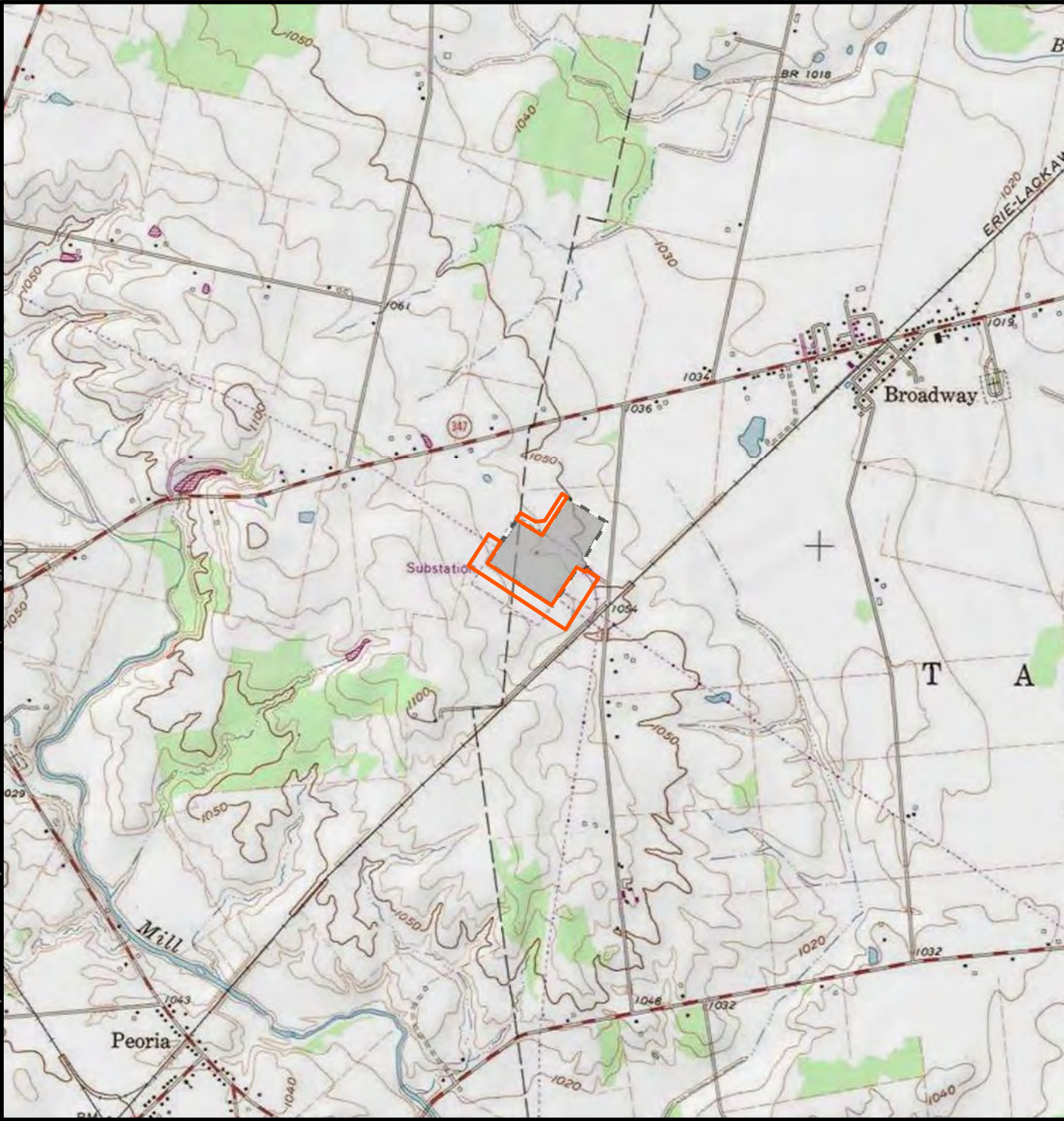
Cowardin, L. M., V. Carter, and F. C. Golet. 1979. Classification of Wetlands and Deep Water Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service. Washington D. C. FWS/OBS-79/31.

Ohio Environmental Protection Agency (OEPA). 2000. *ORAM v. 5.0 Quantitative Score Calibration*. Columbus, Ohio.



Ohio Environmental Protection Agency (OEPA). 2002. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams*. Final Version 1.0. September 2002.

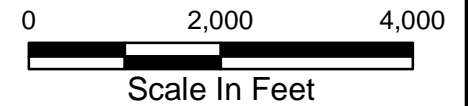
Ohio Environmental Protection Agency (OEPA). 2009. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams*. Review Version 2.3. October 2009.

United States Army Corps of Engineers (USACE). 2010. U.S. Army Corps of Engineers (2010). "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)," ERDC/EL TR-10-16, U.S. Army Engineer Research and Development Center, Vicksburg, MS.



LEGEND:

-  Substation Expansion
-  Substation



BASE MAP SOURCE:
ESRI Online USGS 7.5'
Topographic Quadrangles
Peoria, OH (1975, rev. 1980)



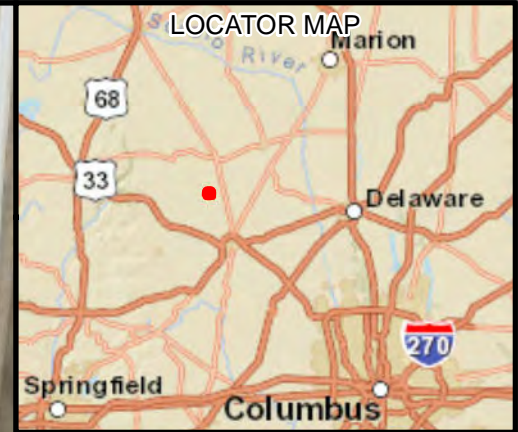
Marysville Substation
Expansion Project

**FIGURE 1
OVERVIEW MAP**

PN: 457058

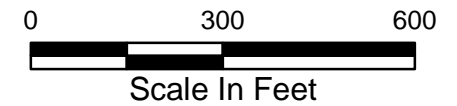
DATE: 7/18/2012





LEGEND:

- Wetlands
- Retention Pond
- Stormwater Conveyance
- Stream
- Wetland Soil Pit
- Upland Soil Pit
- Substation Expansion
- Substation



BASE MAP SOURCE:
Ohio Statewide Imagery Program
Union County, 2006



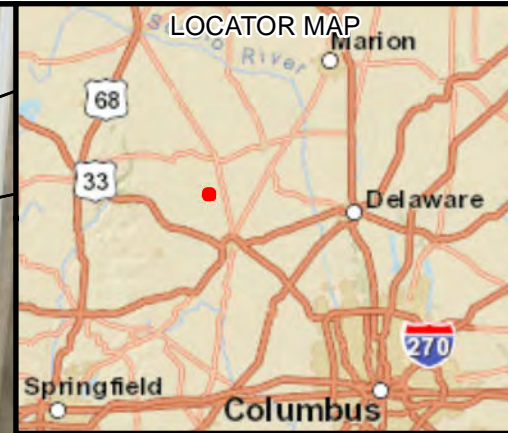
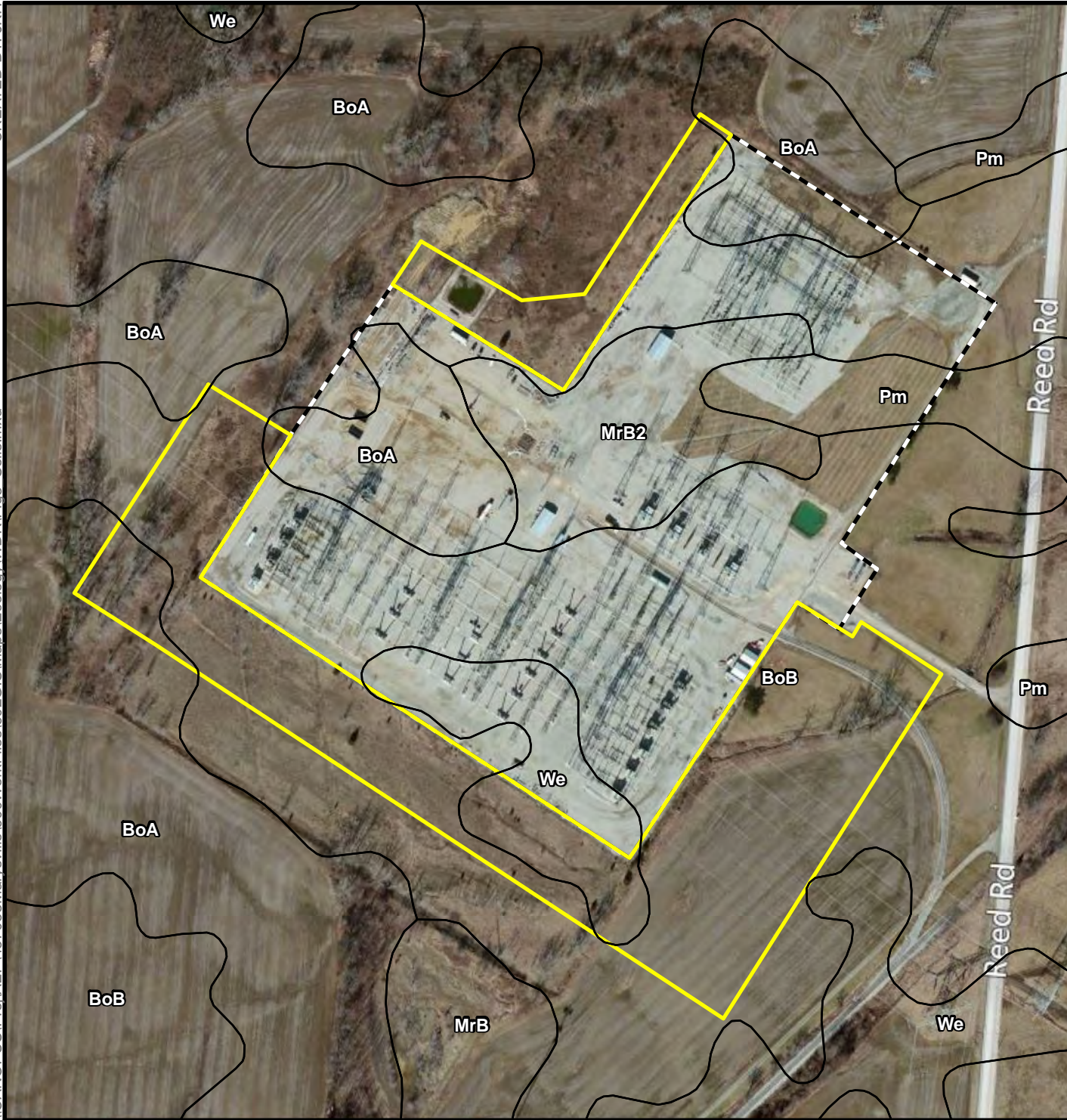
Marysville Substation
Expansion Project

FIGURE 2
WETLANDS AND WATERBODIES

PN: 457058

DATE: 7/31/2012





LEGEND:

- Soils
- Substation Expansion
- Substation



BASE MAP SOURCE:
ESRI Online BING Aerial Photographs



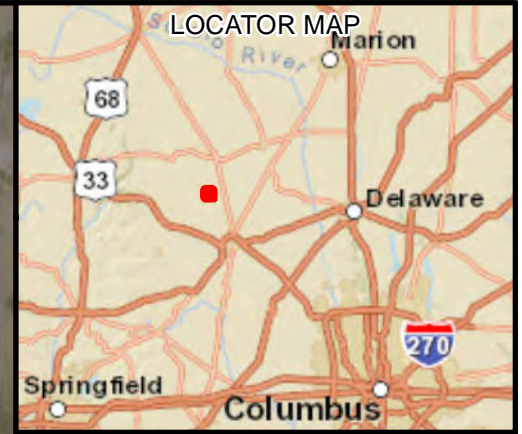
Marysville Substation
Expansion Project

**FIGURE 3
SOILS**





PN: 457058

DATE: 7/18/2012





LEGEND:

-  Substation Expansion
-  Substation
-  Stream
-  NWI



BASE MAP SOURCE:
ESRI Online BING Aerial Photographs



Marysville Substation
Expansion Project

FIGURE 4
NATIONAL WETLAND INVENTORY AND
NATIONAL HYDROLOGY DATASET

PN: 457058

DATE: 7/18/2012





Photograph 1 - old field vegetative community located in the northern portion of the Project area.



Photograph 2 - agricultural row crops surrounded by old field vegetation in the eastern portion of the Project area.



Photograph 3 - upland forested vegetative community in the western portion of the Project area.



Photograph 4 - mowed lawn habitat and substation taken from the eastern portion of the Project area.



Photograph 5 - the south side of Wetland 1 located in the western portion of the Project area.



Photograph 6 – SWC-1 upstream from the stormwater outfall, located in the eastern portion of the Project area.



Photograph 7 – SWC-2 facing upstream towards the stormwater outfalls, located in the eastern portion of the Project area.



Photograph 8 – general view of ephemeral stream 1, downstream of the confluence of SWC-1 and SWC-2.



Photograph 9 - stormwater retention pond located in the northern portion of the Project area within the fence line of the existing substation.

WETLAND DETERMINATION DATA FORM - Midwest Version 2.0

Project/Site: AEP Marysville Substation City/County: Union County Sampling Date: July 11, 2012

Applicant/Owner: AEP State: OH Sampling Point: Wetland 1

Investigator(s): Maggie Vuturo Bosiljevaca Section, Township, Range: _____

Landform (hillslope, terrace, etc.): adjacent to berm Local Relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): _____ Lat: 40.3331 Long: -83.4325 Datum: _____

Soil Map Unit Name: BoB - Boxford Silt Loam 3 to 8 percent slopes NWI classification: NA

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:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)			
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					
<input type="checkbox"/> Water-Stained Leaves (B9)					
<input type="checkbox"/> Aquatic Fauna (B13)					
Field Observations:					
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="16"/>		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="16"/>		
(includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: receives runoff from adjacent substation and berm. Water ponds in the location of the wetland.					

VEGETATION (Four Strata) - Use scientific names of plants.

 Sampling Point: Wetland 1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
			= Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <thead> <tr> <th style="width: 60%;">Total % Cover of:</th> <th style="width: 40%;">Multiply by:</th> </tr> </thead> <tbody> <tr><td>OBL species _____</td><td>x 1 = <u>0</u></td></tr> <tr><td>FACW species _____</td><td>x 2 = <u>0</u></td></tr> <tr><td>FAC species _____</td><td>x 3 = <u>0</u></td></tr> <tr><td>FACU species _____</td><td>x 4 = <u>0</u></td></tr> <tr><td>UPL species _____</td><td>x 5 = <u>0</u></td></tr> <tr><td>Column Totals: <u>0</u> (A)</td><td><u>0</u> (B)</td></tr> </tbody> </table> Prevalence Index = B/A = <u>#DIV/0!</u>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = <u>0</u>	FACW species _____	x 2 = <u>0</u>	FAC species _____	x 3 = <u>0</u>	FACU species _____	x 4 = <u>0</u>	UPL species _____	x 5 = <u>0</u>	Column Totals: <u>0</u> (A)	<u>0</u> (B)
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = <u>0</u>																	
FACW species _____	x 2 = <u>0</u>																	
FAC species _____	x 3 = <u>0</u>																	
FACU species _____	x 4 = <u>0</u>																	
UPL species _____	x 5 = <u>0</u>																	
Column Totals: <u>0</u> (A)	<u>0</u> (B)																	
			= Total Cover															
Sapling/Shrub Stratum: (Plot Size: <u>15'</u>)																		
1. <u>Salix nigra</u>	<u>75</u>	<u>Yes</u>	<u>OBL</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
			= Total Cover															
Herb Stratum: (Plot size: <u>5'</u>)																		
1. <u>Typha latifolia</u>	<u>50</u>	<u>Yes</u>	<u>OBL</u>															
2. <u>Dipsacus fullonum</u>	<u>5</u>	<u>No</u>	<u>FACU</u>															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
11. _____	_____	_____	_____															
12. _____	_____	_____	_____															
			= Total Cover															
Woody Vine Stratum: (Plot size: <u>30'</u>)																		
1. <u>Vitis riparia</u>	<u><5</u>	<u>No</u>	<u>FACW</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
			= Total Cover															
Remarks: (Include photo numbers here or on a separate sheet.)																		

Definitions of Four Vegetation Strata:
Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes <u>X</u>	No _____
--------------	----------

Sampling Point: W1

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

[illegible]¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Version 2.0

Project/Site: AEP Marysville Substation City/County: Union County Sampling Date: July 11, 2012

Applicant/Owner: AEP State: OH Sampling Point: Wetland 1-UPL

Investigator(s): Maggie Vuturo Bosiljevaca Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Berm Local Relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): _____ Lat: 40.3333 Long: -83.4325 Datum: _____

Soil Map Unit Name: BoB - Boxford Silt Loam 3 to 8 percent slopes NWI classification: NA

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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

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

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

HYDROLOGY

Wetland Hydrology Observations:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					
<input type="checkbox"/> Water-Stained Leaves (B9)					
<input type="checkbox"/> Aquatic Fauna (B13)					
Field Observations:					
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="16"/>		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="16"/>		
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

VEGETATION (Four Strata) - Use scientific names of plants.

 Sampling Point: UPL 1

	Absolute % Cover	Dominant Species?	Indicator Status																						
Tree Stratum (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)																					
1. _____	_____	_____	_____																						
2. _____	_____	_____	_____																						
3. _____	_____	_____	_____																						
4. _____	_____	_____	_____																						
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
_____ = Total Cover																									
Sapling/Shrub Stratum (Plot Size: _____)				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 60%;">Total % Cover of:</td> <td style="width: 20%;"></td> <td style="width: 20%;">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td>x 1 =</td> <td>0</td> </tr> <tr> <td>FACW species</td> <td>x 2 =</td> <td>0</td> </tr> <tr> <td>FAC species</td> <td>x 3 =</td> <td>0</td> </tr> <tr> <td>FACU species</td> <td>x 4 =</td> <td>0</td> </tr> <tr> <td>UPL species</td> <td>x 5 =</td> <td>0</td> </tr> <tr> <td>Column Totals:</td> <td>0 (A)</td> <td>0 (B)</td> </tr> </table> Prevalence Index = B/A = <u> </u> #DIV/0!	Total % Cover of:		Multiply by:	OBL species	x 1 =	0	FACW species	x 2 =	0	FAC species	x 3 =	0	FACU species	x 4 =	0	UPL species	x 5 =	0	Column Totals:	0 (A)	0 (B)
Total % Cover of:		Multiply by:																							
OBL species	x 1 =	0																							
FACW species	x 2 =	0																							
FAC species	x 3 =	0																							
FACU species	x 4 =	0																							
UPL species	x 5 =	0																							
Column Totals:	0 (A)	0 (B)																							
1. _____	_____	_____	_____																						
2. _____	_____	_____	_____																						
3. _____	_____	_____	_____																						
4. _____	_____	_____	_____																						
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
9. _____	_____	_____	_____																						
10. _____	_____	_____	_____																						
_____ = Total Cover																									
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
1. <u>Dipsacus fullonum</u>	50	Yes	FACU																						
2. <u>Solidago sp.</u>	30	Yes																							
3. <u>Apcynum cannabinum</u>	5	No	FAC																						
4. <u>Agrimonia sp.</u>	5	No																							
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
7. _____	_____	_____	_____																						
8. _____	_____	_____	_____																						
9. _____	_____	_____	_____																						
10. _____	_____	_____	_____																						
11. _____	_____	_____	_____																						
12. _____	_____	_____	_____																						
90 = Total Cover																									
Woody Vine Stratum (Plot size: _____)				Definitions of Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 3.28 ft tall. Woody Vines - All woody vines greater than 3.28 ft in height.																					
1. _____	_____	_____	_____																						
2. _____	_____	_____	_____																						
3. _____	_____	_____	_____																						
4. _____	_____	_____	_____																						
5. _____	_____	_____	_____																						
6. _____	_____	_____	_____																						
_____ = Total Cover																									
				Hydrophytic Vegetation Present?																					
				Yes <u> </u> No <u> </u>																					
Remarks: (Include photo numbers here or on a separate sheet.) Indictors were not assigned for plants that could not be identified to species; however, baased on the lack of hydrology and hydric soils, and prevalent indicator status for these genrea, it is assumed they area facultative upland (FACU).																									

SOIL

Sampling Point: UPL 1

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

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

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Stratified Layers (A5)

☐ 2 cm Muck (A10)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Mucky Mineral (S1)

☐ 5 cm Mucky Peat or Peat (S3)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Loamy Mucky Mineral (F1)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

☐ Coast Prairie Redox (A16)

☐ Dark Surface (S7)

☐ Iron-Manganese Masses (F12)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present?

Yes ☐ No ☒

Remarks:

US Army Corps of Engineers

Version 5.0	Ohio Rapid Assessment Method for Wetlands	
	Background Information Score Boundary Worksheet Narrative Rating Quantitative Rating Categorization Worksheets Field Scoring Form	Ohio EPA, Division of Surface Water Final: February 1, 2001
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and DOES NOT HAVE THE FORCE OF LAW		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

Background Information

Name: Maqqie Vuturo Bosiljevac	
Date: July 11, 2012	
Affiliation: CH2M HILL Engineers, Inc. (CH2M HILL)	
Address: 10123 Alliance Road Suite 300 Cincinnati, OH 45242	
Phone Number: 513-530-5520	
e-mail address: maqqie.vuturobosiljevac@ch2m.com	
Name of Wetland:	
Vegetation Communit(ies): PSS	
HGM Class(es):	
Location of Wetland include map, address, north arrow, landmarks, distances, roads, etc. <div style="text-align: center; padding: 20px;">See figures included in Appendix A</div>	
Lat/Long or UTM Coordinate	40.3331/ -83.4325
USGS Quad Name	Peoria
County	Union
Township	
Section and Subsection	
Hydrologic Unit Code	
Site Visit	Yes
National Wetland Inventory Map	Not Shown
Ohio Wetland Inventory Map	Unknown
Soil Survey	BoB
Delineation report/map	Yes
Wetland Size (acres, hectares)	0.09 acre

Name: Marysville Substation Wetland 1

sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.)

Comments, Narrative Discussion, Justification of Category Changes

PSS wetland (approximately 15' tall willows). No observed hydrological connection. Wetland is located between berm and substation fence.

Final score : 24

Category

1

Scoring Boundary Worksheet

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

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

Narrative Rating

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

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	<input checked="" type="radio"/> NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	<input checked="" type="radio"/> NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	<input checked="" type="radio"/> NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	<input checked="" type="radio"/> NO Go to Question 8a

#	Question	Circle one	
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 9d
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

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

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

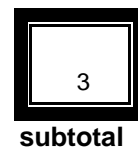
Quantitative Rating

Metric 1. Wetland area (max 6 pts). Estimate the area of wetland. Select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.		score
6pts	≥50 acres (≥ 20.2ha)	
5pts	25 - <50 acres (10.1 - <20.2ha)	
4pts	10 - <25 acres (4.0 - <10.1ha)	
3pts	3 - <10 acres (1.2 - <4.0ha)	
2pts	0.3 - <3 acres (0.12 - <1.2ha)	
1pt	0.1 - <0.3 acres (0.04 - <0.12ha)	
0pts	< 0.1 acres (0.04ha)	0

Table 2. Metric to English conversion table with visual estimation sizes.

acres	ft ²	yd ²	ft on side	yd on side	ha	m ²	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

Metric 2. Upland buffers and intensity of surrounding land uses. Maximum 14 points. Wetlands are systems transitional between upland and aquatic environments. Wetlands without "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded.		score
2a. Average Buffer Width (abw). Calculate the average buffer width and select only one score. To calculate abw, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: abw of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows: $abw = (50m + 25m + 10m + 0m)/4 = 21.25m$. Intensive land uses are not buffers, e.g. active row cropping, recently abandoned fields, paved areas, housing developments, unfenced pasture, etc.		0
7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	
2b. Intensity of predominant surrounding land use(s). Select one, or double check up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone (if any).		3
7pts	VERY LOW. 2 nd growth or older forest, prairie, savannah, wildlife area, etc.	
5pts	LOW. Old field (>10 yrs), shrubland, young 2 nd growth forest, etc.	X
3pts	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field, etc.	
1pt	HIGH. urban, industrial, open pasture, row cropping, mining, construction, etc.	X



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Metric 3. Hydrology. Maximum 30 points. This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. A wetland can receive no more than 30 points for Metric 3 even though it is possible, to score more than 30 points.		8
3a. Sources of Water. Select all that apply and sum score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		1
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	
1pts	Precipitation	X
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	
3b. Connectivity. Select all that apply and sum score.		0
1pt	100 year floodplain. "Floodplain" is defined in OAC Rule 3745-1-50(P) as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	
1pt	between stream/lake and other human land use. This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	
1pt	part of wetland or upland (e.g. forest, prairie) complex. Both this and the next question ask whether the wetland is in physical proximity to, or a part of other nearby wetland or upland natural areas. The difference is whether the area the wetland is "long and narrow" like a river, or more "squarish" like a large forest or woodlot. If the latter is the case, this question applies; if the former, the next question applies. In a few instances, both may apply	
1pt	part of riparian or upland corridor. See description above.	
3c. Maximum water depth. Select only one and assign score. The Rater <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		1
3pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	X
3d. Duration of inundation/saturation. Select one or double check and average the scores if duration is uncertain. The use of secondary indicators is necessary and expected in order to properly answer this Question. Categories correspond to Zones II, III, and IV of 1987 Manual (Table 5). Zone IV subdivided into seasonally inundated and seasonally saturated.		1
4pts	Semipermanently to permanently inundated or saturated.	
3pts	Regularly inundated or saturated.	
2pts	Seasonally inundated.	
1pt	Seasonally saturated in the upper 30cm (12in) of soil.	X

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3e. Modifications to natural hydrologic regime. Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the Rater to evaluate the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

It is very important to stress that this question does not discriminate between wetlands with different types of hydrologic regimes, e.g. between a forested seep wetland located on a floodplain with seasonal inundation and a leatherleaf (*Chamaedaphne calyculata*) bog with precipitation and minor amounts of surface run-off from a small watershed. Rather, it asks the rater to evaluate the "intactness" of the hydrologic regime attributable to *that type of wetland*. In the example above, both the forested seep wetland and the leatherleaf bog can score the maximum points (12) if there no, or no apparent, modifications to the natural hydrologic regime.

Once the Rater has listed all possible past and ongoing disturbances, the Rater should check the most appropriate category to describe the present state of the wetland. In instances where the Rater believes that a wetland falls between two categories, or where the Rater is uncertain as to which category is appropriate, it is appropriate to "double check" and average the score.

The labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a hydrologic disturbance continuum, from very high to very low or no disturbance.

The Rater may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

5

Check all that are observed present in or near the wetland.

<input type="checkbox"/>	ditch(es), in or near the wetland	<input type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	X	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
X	stormwater inputs (addition of water)	<input type="checkbox"/>	other (specify)

Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be "natural."?

YES

Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.

NO

Assign a score of 12 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 9.5.

Select one or double check adjoining numbers and average the score.

score

12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the rater.	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	X
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.	X
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	

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Metric 4. Habitat Alteration and Development. Maximum 20 points. While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. This metric attempts to evaluate these things under the rubric "habitat alteration." In many instances, items checked as possible hydrologic disturbances in Question 3e will be instead alterations to a wetland's habitat or disruptions in its development (successional state). In other instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. In any case, the Rater should carefully consider what is the actual proximate (direct) cause of the disturbance to the wetland.		10
4a. Substrate/Soil Disturbance. Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance. Examples of substrate/soil disturbance include filling and grading, plowing, grazing (hooves), vehicle use (motorbikes, off-road vehicles, construction vehicles), sedimentation, dredging, and other mechanical disturbances to the surface substrates or soils.		2.5
Circle one answer. Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils or substrates, or have they occurred so far in the past that current conditions should be considered to be "natural."?	YES Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.	NO Assign a score of 4 since there are no or no apparent modifications.
NOT SURE Double check "none or none apparent" and "recovered" and assign a score of 3.5.		
Select one or double check adjoining numbers and average the score.		score
4pts	NONE OR NONE APPARENT. There are no disturbances, or no disturbances apparent to the Rater.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	X
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	X
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	
4b. Habitat development. Select only one and assign score. This question asks the Rater to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically or hydrogeomorphically similar wetlands. This question presumes a good sense of the types of wetlands and the range in quality typical of the region, watershed, or state.		3
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	X
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears to not be a good example of its type or class because of past or present disturbances, successional state, etc.	

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4c. Habitat alteration. This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify a possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. In some instances, the scores can be viewed as a habitat alteration continuum, from very high to very low or no disturbance. **The Rater may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

4.5

Check all that are observed present in or near the wetland.

	Mowing		Herbaceous layer/aquatic bed removal
	Grazing (cattle, sheep, pigs, etc.)		Sedimentation
	Clearcutting		Dredging
	Selective cutting		Farming
	Woody debris removal		Nutrient enrichment, e.g. nuisance algae
	Toxic pollutants		Other (specify)
X	Shrub/sapling removal		Other (specify)

Circle one answer. Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat, or have occurred so far in the past that current habitat should be considered to be "natural."?

YES

Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.

NO

Assign a score of 9 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 7.5.

Select one score or double check adjoining numbers and average the score.

9pts	NONE OR NONE APPARENT. There are no alterations, or no alterations that are apparent to the Rater.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	X
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	X
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	

Metric 5. Special wetland communities. Maximum 10 points. Assign or deduct points if wetland has the feature described. Refer to Narrative Rating for guidance. No wetland can receive more than 10 points even if multiple categories are applicable.

score

0

	Bog (10 pts)		Lake plains sand prairies (Oak Openings) (10 pts)
	Fen (10 pts)		Relict wet prairies (10 pts)
	Old Growth Forest (10 pts)		Known occurrence of threatened/endangered species (10 pts)
	Mature Forested Wetland (5 pts)		Significant migratory songbird/waterfowl habitat (10 pts)
	Coastal wetlands, unrestricted hydrology (10 pts)		Category 1 wetlands (See Narrative Rating #5) (-10 pts)
	Coastal wetlands, restricted hydrology (5 pts)		

subtotal

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Metric 6. Vegetation, Interspersion, and Microtopography. Maximum 20 points.		
6a. Wetland Vegetation Communities. Check each community present <u>both vertically and horizontally</u> within the wetland with an area of at least 0.1hectares or 1000m ² (0.2471 acres). Assign a score of 0 to 3 using Tables 3, Table 4 or Table 5. Sum the scores for the classes present.		2
	Aquatic Bed. Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed (<i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	
1	Emergent. Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, fens, prairie pothole, and bluejoint slough.	
1	Shrub. Includes areas of wetlands dominated by woody vegetation less than 6m (20 ft) tall. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	
	Forested. Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are defined as "vernal pools" in OAC Rule 3745-1-50.	
	Mudflats. The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB ₃) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	
	Open water. The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas re 1) inundated, 2) unvegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	
	Other (See User's Manual)	

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 6 for narrative descriptions of what "low," "moderate," and "high" quality mean.

Cover scale	Description
0	the vegetation community is either, 1) absent from wetland, or 2) comprises less than 0.1ha (0.2471 acres) of contiguous area within the wetland
1	vegetation community is present and either, 1) comprises a small part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation, the community is of low quality
2	the vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	the vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation.

Table 4. Use this table in conjunction with Table 5 to determine what is a "low," "moderate," or "high" quality community.

narrative	description
low	low species diversity and/or a predominance of non-native or disturbance tolerant native species
moderate	native species are the dominant component of the vegetation, although non-native or disturbance tolerant native species can also be present, and species diversity is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species
high	a predominance of native species, with non-native species absent or virtually absent, and high species diversity and sometimes, but not always, the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

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

subtotal

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6b. Horizontal (plan view) interspersions. Select only one and assign score. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.	0
5pts HIGH. Wetland has a high degree of interspersions.	
4pts MODERATELY HIGH. Wetland has a moderately high degree of interspersions.	
3pts MODERATE. Wetland has a moderate degree of interspersions.	
2pts MODERATELY LOW. Wetland has a moderately low degree of interspersions.	
1pt LOW. Wetland has a low degree of interspersions.	
0pts NONE. Wetland has no plan view interspersions.	X

6c. Coverage of Invasive Plant Species. Refer to Table 1 on Page 7 for list. Select only one and assign score.	1
-5pts Extensive. >75% areal cover of invasive species	
-3pts Moderate 25-75% areal cover of invasive species	
-1pt Sparse. 5-25% areal cover of invasive species	
0pts Nearly absent. <5% areal cover of invasive species	
1pt Absent.	X

6d. Microtopography. Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.	0
Vegetated hummocks and tussocks.	
Coarse woody debris >15cm (6in) in diameter	
Standing dead trees >25cm (10in) diameter at breast height	
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction.	

Table 6. Cover scale for microtopographic habitat features.

microtopographic habitat quality	narrative description
0	feature is absent or functionally absent from the wetland
1	feature is present in the wetland in very small amounts or if more common, of low quality
2	feature is 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

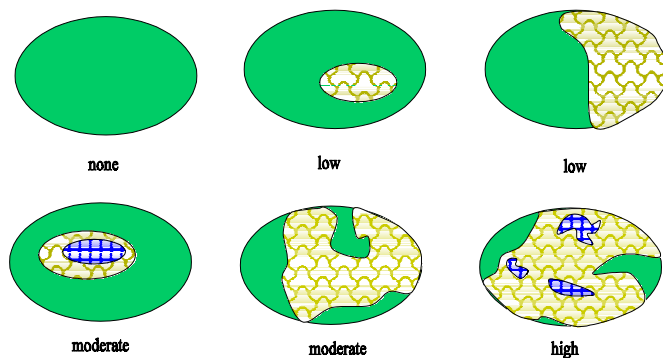


Figure 1. Hypothetical wetlands for estimating degree of interspersions.

GRAND TOTAL

End of Quantitative Rating. Complete Categorization Worksheets.

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

ORAM Summary Worksheet

		circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
	Question 6. Bogs	YES	NO	If yes, Category 3.
	Question 7. Fens	YES	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted.	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	NO	If yes, Category 3
Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	0		
	Metric 2. Buffers and surrounding land use	3		
	Metric 3. Hydrology	8		
	Metric 4. Habitat	10		
	Metric 5. Special Wetland Communities	0		
	Metric 6. Plant communities, interspersed, microtopography	3		
	TOTAL SCORE Consult most recent score calibration report at http://www.epa.ohio.gov/dsw/401/index.aspx to determine the wetland's category based on its quantitative score	24		Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

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

Final Category

Choose one	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3
------------	---	----------------------------------	----------------------------------

End of Ohio Rapid Assessment Method for Wetlands.



Primary Headwater Habitat Evaluation Form

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

36

SITE NAME/LOCATION **AEP Marysville Substation**SITE NUMBER **Stream 1**

RIVER BASIN

DRAINAGE AREA (mi²)LENGTH OF STREAM REACH (ft) **450**LAT. **40.33166**LONG. **-83.42865**

RIVER CODE

RIVER MILE

DATE **07/11/12**SCORER **MVB**COMMENTS **stream formed from stormwater outfall**

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

STREAM CHANNEL MODIFICATIONS:

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="5%"/>	<input type="checkbox"/> SILT [3 pt]	<input type="text" value="50%"/>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="35%"/>	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="10%"/>	<input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0%"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%**

(A)

Substrate Percentage Check **100%**

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **15**TOTAL NUMBER OF SUBSTRATE TYPES: **1**

HHEI Metric Points

Substrate Max = 40

16

A + B

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

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

COMMENTS **no flowing water, isolated pools**MAXIMUM POOL DEPTH (centimeters): **9**

Pool Depth Max = 30

15

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

<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): **0.70**

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 type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	None

FLOODPLAIN QUALITY

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

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

COMMENTS **parallels substation for approximately 185'**FLOW REGIME (At Time of Evaluation) (Check *ONLY* one box):

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

COMMENTS **flows from stormwater outfall; no flowing water; assumed ephemeral**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

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

STREAM GRADIENT ESTIMATE

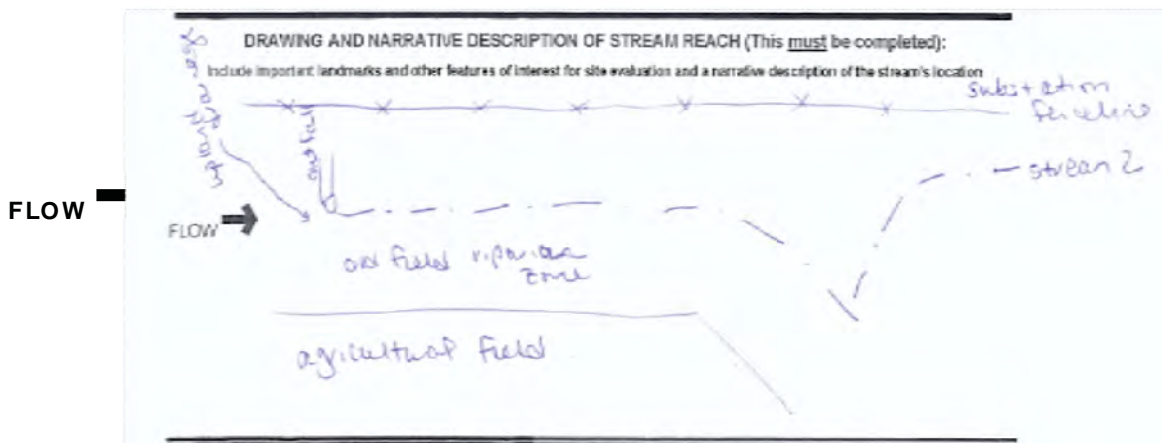
☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score (If Yes, Attach Completed QHEI Form)**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIONUSGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City: **MISCELLANEOUS**Base Flow Conditions? (Y/N): Date of last precipitation: Quantity: Photograph Information: Elevated Turbidity? (Y/N): Canopy (% open): Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts: **BIOTIC EVALUATION**Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology: **DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





CH2M HILL
10123 Alliance Road
Suite 300
Cincinnati, OH 45242
Tel 513.530.5520
Fax 513.530.5541

July 31, 2012

John Heppner
American Electric Power
700 Morrison Road
Gahanna, OH 45230

Subject: Marysville Substation Expansion Project, Union County, Ohio
Threatened and Endangered Species Records Review and Site Reconnaissance

Dear Mr. Heppner:

This Threatened and Endangered Species Records Review and Site Reconnaissance Report (Report) summarizes the information obtained from the Ohio Department of Natural Resources (ODNR) Ohio Biodiversity Database Program, the United States Fish and Wildlife Service (USFWS), and the July 11, 2012, site reconnaissance visit conducted by CH2M HILL at the Marysville Substation Expansion Project (Project) site located in Union County, Ohio. The Project reconnaissance documented the vegetation communities present within the Project area. American Electric Power (AEP) is proposing the Project to minimize outages and improve safety at the Marysville Substation. The proposed 14.38-acre Project area is an expansion of the existing Marysville Substation's 27.8-acre footprint. Ohio Power Siting Board regulations (OAC 4906-11-01(E)(1)) require the applicant to investigate for "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." This letter report fulfills that requirement.

1.0 BACKGROUND INFORMATION

CH2M HILL was retained by AEP to review available information and document vegetation communities within the Project area during a site reconnaissance visit. Prior to conducting the site visit, CH2M HILL reviewed the USFWS Federally Listed Species by Ohio Counties report (USFWS Ohio Ecological Services Field Office, 2012) for information concerning which federally listed, proposed endangered, proposed threatened, and candidate species are known to occur, or potentially occur, in Union County, Ohio. CH2M HILL also reviewed the relevant United States Geological Survey (USGS) topographic map, Peoria quadrangle (Attachment A, Figure 1). Additionally, CH2M HILL submitted an ODNR Ohio Biodiversity Database Program Data Request Form to the ODNR Division of Wildlife via email on July 10, 2012, to solicit information on known occurrences of federally-listed and state-listed species within a one-mile radius of the Project area. A response from the ODNR Division of Wildlife was received on July 13, 2012, via email. The results of the Ohio Biodiversity Database Program search are discussed below.

2.0 RESULTS OF DOCUMENT REVIEW

The ODNR Division of Wildlife's July 13, 2012, letter identified no records of rare or endangered species in the Project area or within a one-mile radius, in Taylor and Liberty Townships, Union County, Ohio. In addition, the letter stated that the ODNR is 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 a one-mile radius of the Project area (Attachment B).

The USFWS Ohio Ecological Services Field Office (2012) identified the following federally-listed endangered species and candidate species as occurring, or potentially occurring, in Union County, Ohio: Indiana bat (*Myotis sodalis*, endangered), Scioto madtom (*Noturus trautmani*, endangered), rayed bean (*Villosa fabalis*, endangered), clubshell (*Pleurobema clava*), northern riffleshell (*Epioblasma torulosa rangiana*, endangered), snuffbox (*Epioblasma triquetra*, endangered), and rabbitsfoot (*Quadrula cylindrica cylindrica*, candidate). Additionally, the USFWS Ohio Ecological Services Field Office (2012) lists the bald eagle (*Haliaeetus leucocephalus*) as a species of concern. The bald eagle was removed from the federal list of threatened and endangered species by the USFWS on July 9, 2007, because their populations made sufficient recovery; however, the species is still protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Act (USFWS 2012).

3.0 SITE OBSERVATIONS

The Project area was investigated by CH2M HILL during a July 11, 2012, site visit to document existing vegetation communities and hydrological conditions. CH2M HILL identified two ephemeral streams within the Project area (Attachment A, Figure 3). These streams drain generally east to a tributary of Mill Creek. One palustrine scrub-shrub (PSS)/palustrine emergent (PEM) wetland was also identified within the Project area (Attachment A, Figure 3). In addition, one stormwater retention pond was identified within the Project area. Representative photos of these features are included in Attachment C.

Vegetative Communities

Areas of old field vegetation occur throughout the Project area. These areas are comprised of upland plants typical of such habitats, including goldenrod (*Solidago* sp.), common teasel (*Dipsacus fullonum*), Queen Anne's lace (*Daucus carota*), chicory (*Cichorium intybus*), fescue (*Festuca* sp.), Indian hemp (*Apocynum cannabinum*), poison ivy (*Toxicodendron radicans*), big-rooted morning glory (*Ipomoea pandurata*), curly dock (*Rumex crispus*), red clover (*Trifolium pratense*), broomsedge (*Andropogon virginicus*), dandelion (*Taraxacum officinale*), daisy fleabane (*Erigeron annuus*), common ragweed (*Ambrosia artemisiifolia*), common milkweed (*Asclepias syriaca*), crownvetch (*Coronilla* sp.), and Virginia strawberry (*Fragaria virginiana*). Upland shrubs including black locust (*Robinia pseudoacacia*), autumn olive (*Elaeagnus umbellata*), Allegheny blackberry (*Rubus allegheniensis*), green ash (*Fraxinus pennsylvanica*), and eastern red cedar (*Juniperus virginiana*) were also identified.

Agricultural fields were identified within the eastern portion of the Project area, and most were recently planted with corn (*Zea mays*).

Upland forest is located within the western portion of the Project area. The canopy was dominated by eastern cottonwood (*Populus deltoides*) and the sub-canopy was dominated by green ash, common

hackberry (*Celtis occidentalis*), and sugar maple (*Acer saccharum*). Herbaceous vegetation was dominated by teasel, fescue, Queen Anne's lace, poison ivy, and Virginia strawberry.

Site photographs documenting vegetation communities and land use within the Project area are included in Attachment C.

Wetlands and Waterbodies

One PSS/PEM wetland (Wetland 1) was identified in the western portion of the Project area (Attachment A, Figure 3). Wetland 1 is approximately 0.09-acre. Based on the Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method for Wetlands version 5.0 (ORAM) score of 24, this wetland was classified as a Category 1 wetland (Mack 2001). The wetland vegetation is dominated by black willow (*Salix nigra*), broadleaf cattail (*Typha latifolia*), and riverbank grape (*Vitis riparia*). CH2M HILL has assumed this feature to be jurisdictional.

Stream 1 is an ephemeral stream that flows southwest off-site and appears to be a tributary of Mill Creek. Approximately 450 linear feet of Stream 1 was identified within the proposed expansion area. Stream 1 is characterized by an average width of approximately 2 to 3 feet. During the site visit Stream 1 contained no flowing water, but isolated pools with approximately 3 to 4 inches of water were observed. The substrate of Stream 1 consisted primarily of cobble and silt. Stream 1 begins as a storm water conveyance (SWC-1) and becomes a stream once it merges with SWC-2. Approximately 207 linear feet of SWC-1 was identified during the site visit.

SWC-2 is a storm water conveyance that flows southwest to Stream 1. Approximately 128 linear feet of SWC-2 was identified within the proposed expansion area. SWC-2 is characterized by an average width of approximately 2 to 3 feet. During the site visit SWC-2 contained no flowing water, but isolated pools with approximately 3 to 4 inches of water were observed. The substrate of SWC-2 consisted primarily of cobble and silt.

One approximately 0.01-acre stormwater retention pond was identified during the site visit. This pond is located within the Project area within the fenceline of the existing substation.

4.0 FEDERALLY-LISTED SPECIES HABITAT ASSESSMENT

A habitat assessment and pedestrian survey of potentially suitable threatened and endangered species habitats within the Project area was completed on July 11, 2012.

As shown on Figures 2 and 3 (Attachment 1), the majority of the Project area is comprised of active agricultural fields, mowed lawn, and old field habitats. The remainder of the Project area consists of upland early successional/second growth forest and PSS/PEM wetland. Two ephemeral streams and one stormwater retention pond were identified within the Project area.

Potentially suitable Indiana bat summer habitat was identified within the upland forested areas located in the western portion of the Project area. Summer roosting habitat consists of trees with crevices, cavities, or exfoliating bark (USFWS 2007). Based on project plans provided by AEP, approximately 1.34 acre of upland forest would be impacted by Project construction and operation. Indiana bat winter habitat consists of caves, mines, and other cave-like locations (USFWS 2007). No potentially suitable Indiana bat winter habitat was identified during the site visit. According to the USFWS, no summer

occurrences of Indiana bats, maternity colonies, or hibernacula have been documented in Union County or any of its eight adjacent counties. The nearest documented Indiana bat hibernaculae to Union County are located in Highland, Hocking, and Preble Counties, Ohio (USFWS 2007).

Six federally-listed aquatic species were identified during the desktop review, which included one fish species (Scioto madtom) and five mussel species (rayed bean, clubshell, northern riffleshell, snuffbox, and rabbitsfoot). Based on the limited amount and poor quality of aquatic resources identified (as outlined in Section 3.0), no potentially suitable habitat was identified for these species.

5.0 CONCLUSION

This letter report summarizes the results of the threatened and endangered species habitat assessment, conducted by CH2M HILL, within the AEP Marysville Substation Expansion Project area in Union County, Ohio. CH2M HILL identified one wetland, totaling 0.09-acre, and one ephemeral stream, totaling 450 linear feet, within the Project area. Vegetative communities identified included agricultural row crops, old field, upland forest, and mowed lawn.

Approximately 1.34-acre of upland forest will be impacted by the Project. Based on historical records for the Project area, consultation with state and federal wildlife management agencies, the limited amount of forested habitat impacts and proposed seasonal tree clearing dates, CH2M HILL anticipates this Project is not likely to adversely affect the Indiana bat or its habitat.

Based on the limited amount and poor quality of aquatic resources identified, CH2M HILL anticipates that this Project is not likely to adversely affect the Scioto madtom, rayed bean, clubshell, northern riffleshell, snuffbox, and rabbitsfoot, or their habitats.

We appreciate the opportunity to assist AEP with this Project. If you have questions, please feel free to call John Hurd at (513) 587-7158.

Sincerely,

CH2M HILL



Maggie Vuturo Bosiljevac
Environmental Scientist

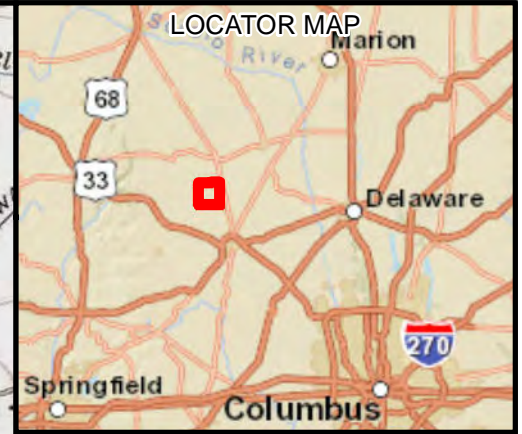
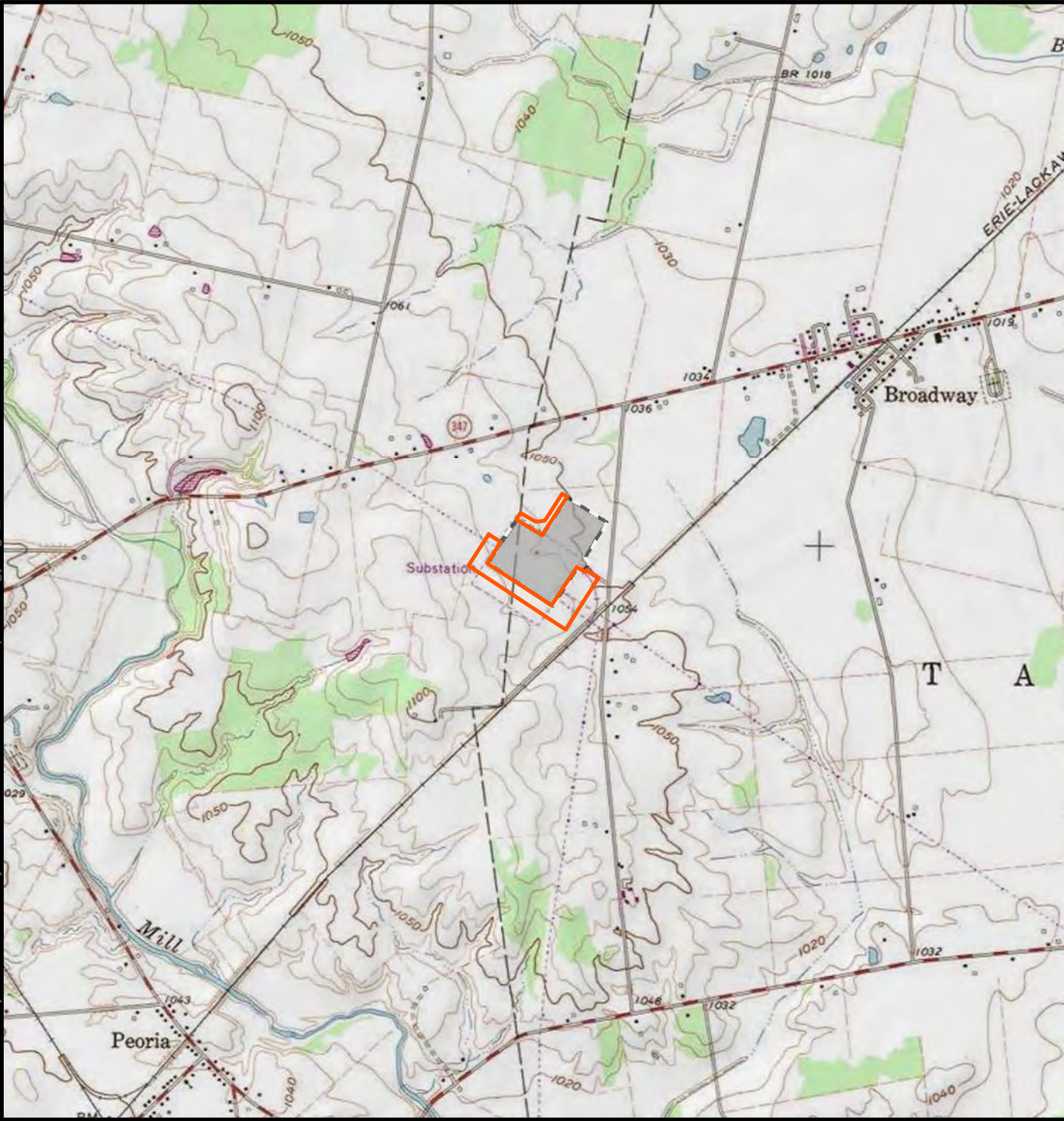


John Hurd
Project Manager



Attachments: Attachment A – Figures
Attachment B – ODNR Division of Wildlife’s July 13, 2012 Letter
Attachment C – Site Photographs

REFERENCES

- Ohio Environmental Protection Agency (OEPA). 2000. *ORAM v. 5.0 Quantitative Score Calibration*. Columbus, Ohio.
- Ohio Environmental Protection Agency (OEPA). 2002. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams*. Final Version 1.0. September 2002.
- United States Fish and Wildlife Service (USFWS). 2012. Bald and golden eagles. Available online at <http://www.fws.gov/migratorybirds/baldeagle.htm> and accessed on July 16, 2012.
- United States Fish and Wildlife Service (USFWS) Ohio Ecological Services Field Office. 2012. Federally listed species by Ohio counties, February 14, 2012. Available online at <http://www.fws.gov/midwest/ohio/> and accessed on July 16, 2012.
- United States Fish and Wildlife Service (USFWS). 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.



LEGEND:

-  Substation Expansion
-  Substation

0 2,000 4,000



Scale In Feet

BASE MAP SOURCE:
ESRI Online USGS 7.5'
Topographic Quadrangles
Peoria, OH (1975, rev. 1980)



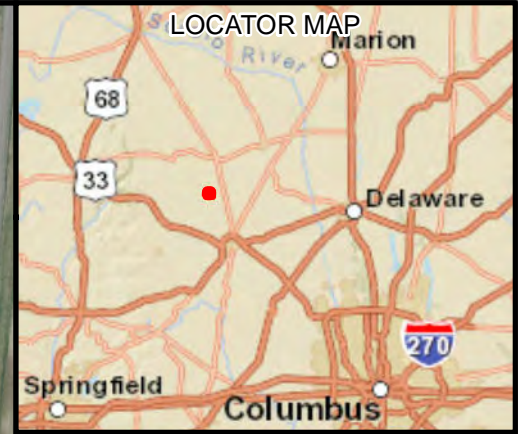
Marysville Substation
Expansion Project

FIGURE 1
OVERVIEW MAP

PN: 457058

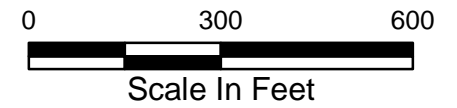
DATE: 7/18/2012





LEGEND:

- Substation Expansion
- Substation



BASE MAP SOURCE:
Ohio Statewide Imagery Program
Union County, 2006



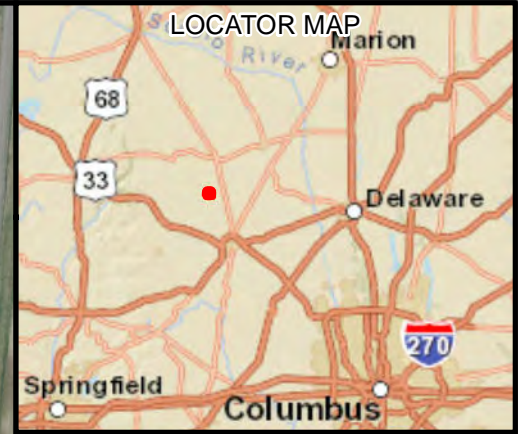
Marysville Substation
Expansion Project

FIGURE 2
WETLANDS AND WATERBODIES

PN: 457058

DATE: 7/20/2012





LEGEND:

- Substation Expansion
- Substation
- Wetlands
- Stormwater Conveyance
- Stream

Vegetation Community

- Agricultural
- Mowed Lawn
- Old Field
- Upland Forest



Scale In Feet

BASE MAP SOURCE:
Ohio Statewide Imagery Program
Union County, 2006



Marysville Substation
Expansion Project

FIGURE 3
VEGETATION COMMUNITIES

PN: 457058

DATE: 7/31/2012





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
Phone: (614) 265-6300

July 13, 2012

John Hurd
CH2M Hill
10123 Alliance Road, Suite 300
Cincinnati, OH 45242

Dear Mr. Hurd

After reviewing the Biodiversity Database, I find the Division of Wildlife has no records of rare or endangered species in the Marysville Substation Expansion project area, including a one mile radius, in Taylor and Liberty Townships, Union County, Ohio. 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, parks or forests or other protected natural areas within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. 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 Biodiversity 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". The signature is written in a cursive style with a small horizontal line above the "n" in Schneider.

Greg Schneider, Administrator
Ohio Biodiversity Database Program



Photograph 1 - old field vegetative community located in the northern portion of the Project area.



Photograph 2 - agricultural row crops surrounded by old field vegetation in the eastern portion of the Project area.



Photograph 3 - upland forested vegetative community in the western portion of the Project area.



Photograph 4 - mowed lawn habitat and substation taken from the eastern portion of the Project area.



Photograph 5 - the south side of Wetland 1 located in the western portion of the Project area.



Photograph 6 - Stream 1 upstream from outfall located in the eastern portion of the Project area.



Photograph 7 - Stream 2 facing upstream located in the eastern portion of the Project area.



Photograph 8 - stormwater retention pond located in the northern portion of the Project area within the fence line of the existing substation.



CH2M HILL
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Tel 513.530.5520
Fax 513.530.5541

July 31, 2012

John Heppner
American Electric Power
700 Morrison Road
Gahanna, OH 45230

Subject: Marysville Substation Expansion Project, Union County, Ohio
Cultural Resources Desktop Report

Dear Mr. Heppner:

This Cultural Resources Desktop Report (Report) summarizes the Ohio Historic Preservation Office (OHPO) records, obtained through the OHPO's Online Mapping System, and documents previously disturbed areas for the Marysville Substation Expansion Project (Project) site located in Union County, Ohio (Attachment A; Figure 1). The proposed 14.38-acre Project area is an expansion of the existing American Electric Power (AEP) Marysville substation's 27.8-acre footprint (Attachment A; Figure 2). AEP is proposing the expansion Project to minimize outages and improve safety at the Marysville Substation. As required in the Ohio Power Siting Board regulations (OAC 4906-11-01(D)(3)) the purpose of this Report is to investigate the "...the presence or absence of significant archaeological or cultural resources that may be located within the [Project] area likely to be disturbed by the [Project]".

RESULTS OF DESKTOP REVIEW

CH2M HILL reviewed the OHPO's Online Mapping System for known significant archaeological or cultural resources within a one-mile radius of the Project site in Union County, Ohio. The Online Mapping System search included review of the following data:

- National Register Listings
- National Register Determinations of Eligibility
- National Register Boundaries
- Ohio Historic Inventory – Historic Structures
- Ohio Archaeological Inventory – Previously Surveyed Areas (Phase 1, Phase 2, Phase 3)
- Ohio Archaeological Inventory – Archaeological Sites
- Other OHPO Data – OGS Cemeteries
- Other OHPO Data – National Road

No significant archaeological or cultural resources sites, structures, districts, or surveys were documented within a one-mile radius of the Project area.

John Heppner

Page 2

July 31, 2012

RESULTS OF SITE RECONNAISSANCE

CH2M HILL conducted a site reconnaissance on July 11, 2012 and observed that approximately 85 percent or more of the Project area was previously disturbed by past construction activities; therefore, these areas have a significantly lower chance of containing intact significant archaeological or cultural resources than undisturbed areas. The remainder of the Project area is currently being utilized for agricultural row crops. Attachment B provides site photographs of the portions of the Project area identified as having been previously disturbed.

CONCLUSION

This letter report summarizes the results of the cultural resources desktop review and site reconnaissance conducted by CH2M HILL for the AEP Marysville Substation Expansion Project area in Union County, Ohio. CH2M HILL identified no previously recorded significant archaeological or cultural resources within a one-mile radius of the Project area.

We appreciate the opportunity to assist AEP with this Project. If you have questions, please feel free to call John Hurd at (513) 587-7158.

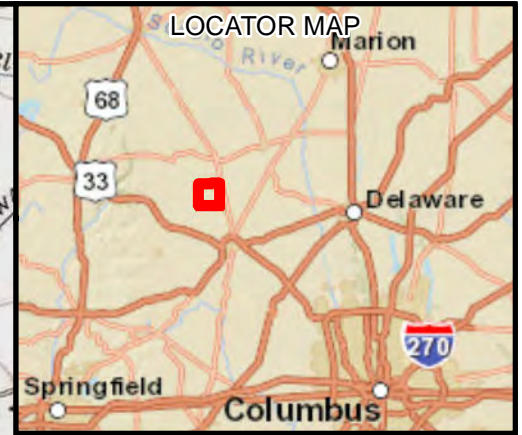
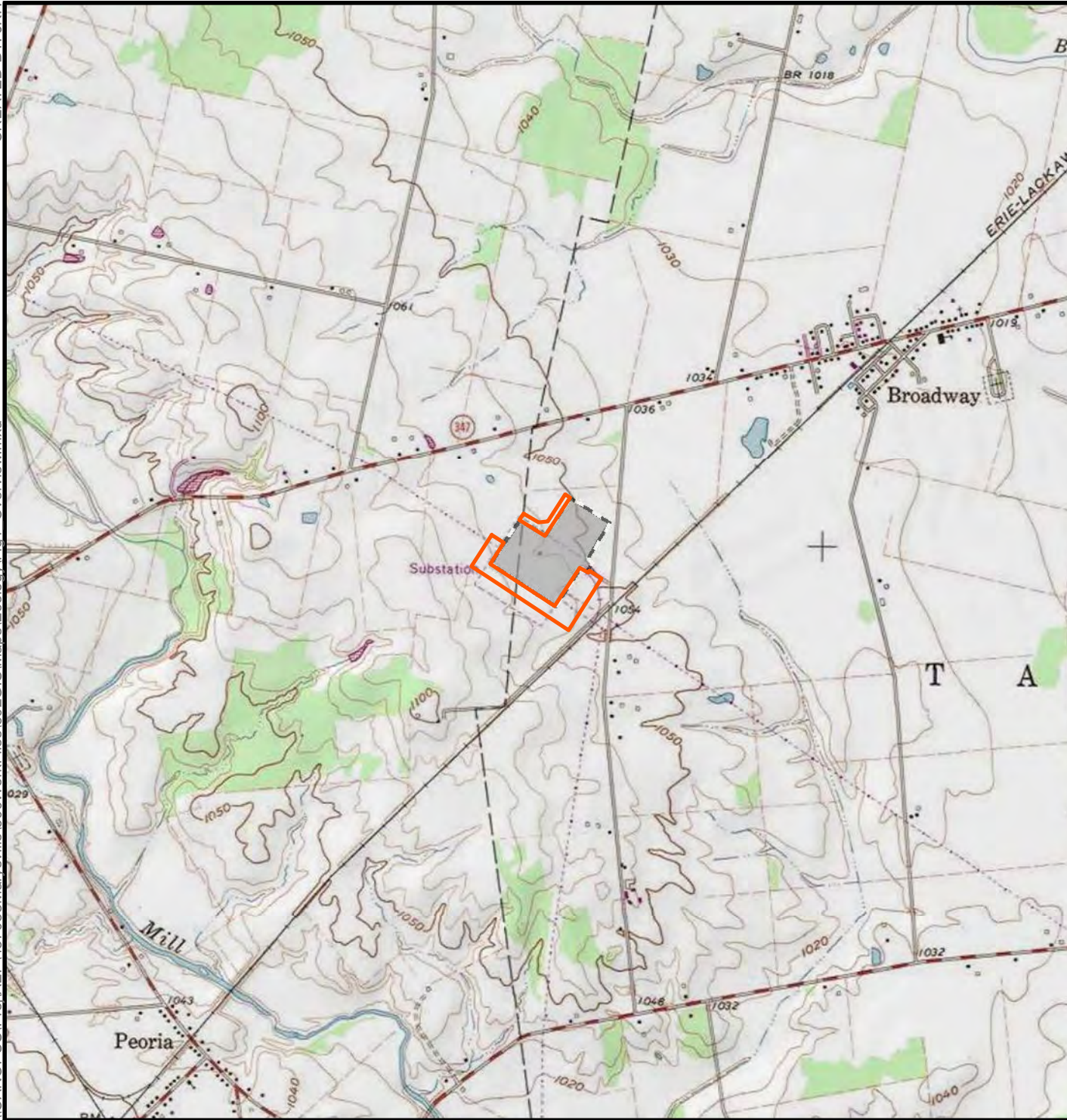
Sincerely,

CH2M HILL





John Hurd
Project Manager

Attachments: Appendix A – Figures
Appendix B – Site Photographs



LEGEND:

-  Substation Expansion
-  Substation

0 2,000 4,000



Scale In Feet

BASE MAP SOURCE:
ESRI Online USGS 7.5'
Topographic Quadrangles
Peoria, OH (1975, rev. 1980)



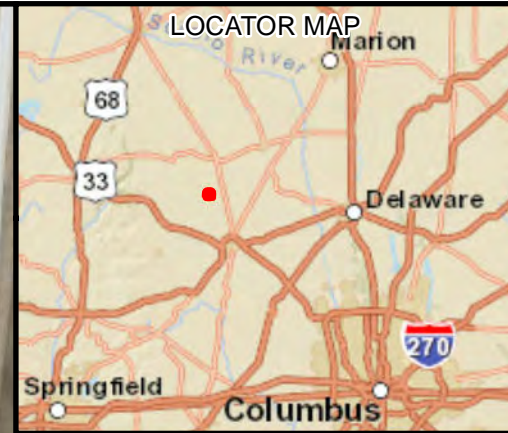
Marysville Substation
Expansion Project

FIGURE 1
OVERVIEW MAP



PN: 457058

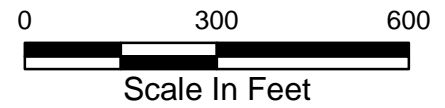
DATE: 7/18/2012





LEGEND:

-  Substation Expansion
-  Substation



BASE MAP SOURCE:
ESRI Online BING Aerial Photographs



Marysville Substation
Expansion Project

FIGURE 2
AERIAL PHOTOGRAPH

PN: 457058
DATE: 7/18/2012





Photograph 1 - graded field in the southern area of the Project area looking southeast from the southwest corner of the existing substation.



Photograph 2 - graded field in the southern area of the project area looking northwest from the southeast corner of the Project area.



Photograph 3 - graded area in the northern portion of the Project Area.



Photograph 4 - graded berm and drainage channel in the western portion of the Project area.



Photograph 5 - ephemeral stream located in the eastern portion of the Project area.



Photograph 6 - channelized ephemeral stream located in the eastern portion of the Project area.



Photograph 7 - stormwater retention pond located in the northern portion of the Project area.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

8/3/2012 4:18:46 PM

in

Case No(s). 12-2216-EL-BLN

Summary: Notice Letter of Notification - Marysville Station Expansion electronically filed by Erin C Miller on behalf of AEP Ohio Transmission Company, Inc.