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Attachment C: Water Resources Delineation Report

Wetlands and Other Waters

Delineation Report

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for the

South Field Energy Interconnection Facilities
Madison and Yellow Creek Townships,
Columbiana County, Ohio

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STATEMENT OF CERTIFICATION

The analyses, opinions and conclusions in this report are based entirely on EnviroScience's unbiased, professional judgment. EnviroScience's compensation is not in any way contingent on any action or event resulting from this study. Neither EnviroScience nor any EnviroScience employee has any vested interest in the property examined in this study.

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EXECUTIVE SUMMARY

EnviroScience, Inc. performed a delineation of wetlands and other waters in April 2015 and November 2015 for Tetra Tech at the South Field Energy Interconnection Facilities project located in Madison and Yellow Creek Townships, Columbiana County, Ohio. The project area consists of an approximately 38 acre proposed switchyard location with an access drive, a preferred route (along approximately 18,120 feet of proposed utility easement), and an alternate route (along approximately 17,900 feet of proposed utility easement). The total area surveyed for the South Field Energy interconnection project is 240.6 acres. The switchyard is located north of Osborne Road, east of McCormick Run Road, and west of Sines Road. The proposed easements for the preferred and alternate routes are the similar at the eastern and western extents, but they diverge in the center. Both routes start at the proposed switchyard and end east of Hibbetts Mill Road.

Twenty-three (23) wetlands were identified and delineated within the entire project area and account for 3.674 acres. Eleven (11) ephemeral streams, twelve (12) intermittent streams, and two (2) USGS-named perennial streams (Alder Lick Run and Bailey Run) were identified and delineated onsite, accounting for a total of 5,952 linear feet (0.504 acres). Four (4) open water aquatic resources were identified within the project area accounting for an additional 0.470 acres within the project area. The project area consists of maintained lawn, agricultural field, open field, old field, scrub/shrub, and forested vegetation. The surrounding land use consists of agricultural and forested communities, with scattered rural residential properties. Eight (8) distinct vegetative communities were identified within the project area including two (2) wetland community types. The onsite wetland communities include palustrine emergent and palustrine forested vegetative communities.

Wetlands and waterbodies are under the jurisdiction of the Ohio EPA or U.S. Army Corps of Engineers (USACE). No filling may occur within these areas without their written permission. Please contact the Ohio EPA Division of Surface Water at (614) 644-2001 or the Pittsburgh District, U.S. Army Corps of Engineers, at (412) 395-7155 before working in these areas.

1.0 INTRODUCTION AND SITE DESCRIPTION

EnviroScience, Inc. performed a delineation of wetlands and other waters in April 2015 and November 2015 for Tetra Tech at the South Field Energy Interconnection Facilities project located in Madison and Yellow Creek Townships, Columbiana County, Ohio. The project area consists of an approximately 38 acre proposed switchyard location with an access drive, a preferred route (along approximately 18,120 feet of proposed utility easement), and an alternate route (along approximately 17,900 feet of proposed utility easement). The total area surveyed for the South Field Energy interconnection project is 240.6 acres. The switchyard is located north of Osborne Road, east of McCormick Run Road, and west of Sines Road. The proposed easements for the preferred and alternate routes are the similar at the eastern and western extents, but they diverge in the center. Both routes start at the proposed switchyard and end east of Hibbetts Mill Road.

Eight (8) distinct vegetative communities were identified within the project area, including two (2) wetland community types. The project area exists rural residential, agricultural, field, and forested communities. The surrounding area exists as forest and agricultural land with rural residential properties. The project area crosses twenty-three (23) wetlands, eleven (11) ephemeral streams, twelve (12) intermittent streams, two (2) USGS-named perennial streams, and four (4) open water ponds. The onsite open water ponds are located within areas of steep relief that are depicted as strip mines. These areas are no longer active strip mines.

The project area is located in the upper Ohio River drainage basin (Hydrologic #05030101) which drains approximately 640 square miles in northeast Ohio. It is within the Western Allegheny Plateau ecoregion (Woods *et al.* 1998) of Ohio. The project area is located within the area covered by the Eastern Mountains and Piedmont Supplement (USACE 2012) and associated plant list (Lichvar *et al.* 2014). The project area is regulated by the USACE Pittsburgh District.

2.0 METHODS

Government agencies regulate coastal and inland waters for commerce, flood control, and water quality. These water bodies provide numerous functions and values necessary to protect and sustain our quality of life. Wetlands comprise a significant portion of regulated waters. The USACE and U.S. Environmental Protection Agency (USEPA) jointly define wetlands as:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

The remaining deepwater aquatic habitats (open waters) are defined by the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) as:

> ". . . areas that are permanently inundated at mean annual water depths >6.6 ft or permanently inundated areas <6.6 ft in depth that do not support rooted emergent or woody plant species."

The methods used for determining and delineating wetlands and open waters strictly adhere to those found in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont Region* (USACE 2012). Wetlands and open water boundaries were determined by the disappearance of one or more of their diagnostic characteristics.

Ordinary high water marks (OHWM) defined the outermost regulatory boundaries of ephemeral and open waters.

Each sample plot and the perimeter of each wetland and other water was surveyed and marked in the field with plain pink flags and pink "wetland boundary" flags, respectively. A global positioning system (GPS) unit with submeter accuracy was used, in conjunction with aerial photography and topographic figures, for the survey. Computer Aided Design (CAD) software was used to determine wetland dimensions and Geographic Information Systems (GIS) software was used to produce a map of the project area showing wetlands and other waters.

2.1 WETLANDS

2.1.1 Determination

A review of secondary literature sources was performed to find known wetlands and other significant ecological resources and areas with high potential for wetlands in or near the proposed project area. Resources include the following:

1. U.S. Geological Survey (USGS) topographic maps;
2. National Wetlands Inventory (NWI) maps;
3. Web Soil Survey; and
4. Aerial Photographs.

A field inspection of the project area was then completed to identify major plant communities and to visually locate potential wetlands. The routine, onsite (Level 2) wetland determination was used to perform the delineation. Wetland communities were classified according to the classification scheme of Cowardin *et al.* (1979) (Table 1). Mature non-wetland communities that had reached a stable equilibrium were classified

according to Anderson (1982) and Gordon (1966, 1969). Disturbed and successional non-wetland communities were classified as one of the categories described in Table 2.

Table 1. Wetland Communities (Cowardin *et al.* 1979).

Community	Description
PEM	Palustrine Emergent
PSS	Palustrine Scrub-Shrub
PFO	Palustrine Forested
POW	Palustrine Open Water

Table 2. Disturbed and Successional Non-Wetland Communities.

Community		Description
Disturbed	Urban	regularly maintained land; residential; industrial
	Agricultural	land used for producing crops or raising livestock; cropland; pastureland
	Cleared	disturbed areas devoid of most vegetation from recent clearing, grading or filling
Successional	Open Field	herbaceous community without woody vegetation
	Old Field	herbaceous community having woody vegetation coverage of <50%
	Scrub-Shrub	community dominated by woody vegetation <6 m (20 ft) tall
	Forest	community dominated by woody vegetation >6 m (20 ft) tall

Sample plots were established within each natural community and potential wetland within the project area. Complete data for each sample plot were collected and recorded on the USACE's Routine Wetland Determination Data Forms contained in the applicable USACE Regional Supplement (USACE 2012). Vegetation, hydrology and soils were evaluated at each sample plot.

2.1.1.1 Vegetation

To detect the presence or absence of hydrophytic vegetation, four plant strata were evaluated within specific radii of the plot center. Each stratum was ranked by aerial cover in descending order of abundance. Table 3 provides information on each vegetative stratum.

Table 3. Vegetative Strata.

Stratum	Definition	Survey Area
Tree	woody plants > or equal to 3 in. (7.6 cm) diameter at breast height (dbh), regardless of height	30 ft (9.1 m) radius
Sapling/shrub	woody plants <3 in. (7.6 cm) dbh and ≥3.28 ft (1 m) tall	15 ft (4.6 m) radius
Herbaceous	herbs and woody plants less than 3.28 ft (1 m) in height	5 ft (1.5 m) radius
Woody vines	woody vines >3.28 ft (1 m) in height	30 ft (9.1 m) radius

Percent dominance was obtained for each species and within each stratum. Dominant species are those which cumulatively totaled in order of abundance immediately exceed 50% and also include any individual species with an abundance of 20% or more (USACE 2012). Dominant taxa were identified using recognized local guides: nomenclature follows the *National List of Scientific Plant Names* (USDA 1982). Following the identification of each plant species present within the plot, all dominant species within each stratum were assigned a wetland indicator status according to Lichvar (2014). Indicators are summarized in Table 4.

Table 4. Plant Indicators.

Indicator	Category	Definition
OBL	Obligate Wetland	almost exclusively (>99% of occurrences) found in wetlands
FACW	Facultative Wetland	most likely found in wetlands (67-99% of occurrences)
FAC	Facultative	equally likely found in wetlands or non-wetlands (34-66%)
FACU	Facultative Upland	most likely found in non-wetlands (1-33% occurrence in wetlands)
UPL	Obligate Upland	almost exclusively found in non-wetlands (<1% occurrence in wetlands)

An 'NI' (no indicator) designation represents species where not enough information is available to assign an indicator; an 'NL' (no listing) designation is given to species whose identification was not determined sufficiently enough to assign an indicator. Once the indicator status is assigned to each dominant species, the evaluator can perform the percent dominance test according to the protocol outlined within the applicable Regional Supplement (USACE 2012) to determine if the plot meets the criterion for hydrophytic vegetation.

2.1.1.2 Hydrology

To detect the presence or absence of wetland hydrology, surface and subsurface hydrologic indicators were evaluated at the sample plot and throughout the adjacent community. Primary sources of wetland hydrology include direct precipitation, headwater flooding, backwater flooding, groundwater or any combination of these. When obtaining data at each sample plot, the evaluator observes evidence of hydrology. Primary indicators of hydrology (only one of these is necessary to indicate sufficient wetland hydrology) include the presence of surface water, water marks, sediment deposits, drift deposits, etc. (USACE 2012). Secondary indicators of hydrology (which requires two or more at each sample plot) include surface soil cracks, drainage patterns, crayfish burrows, etc. (USACE 2012).

2.1.1.3 Soils

The upper horizons of the soil at each sample plot were examined to detect the presence or absence of hydric soils indicators. Current USACE guidance requires the evaluator to assess the upper 20 inches of soil for hydric soil characteristics. Most indicators of hydric soils require an assessment of soil matrix color and mottle characteristics (Environmental Laboratory 1987, USACE 2012) for each horizon. These characteristics were determined by comparing a moist sample with *Munsell Soil Color Chart* (Munsell Color 2009) or *The Globe Soil Color Book* (Visual Color Systems 2004).

2.1.2 ORAM Categorization

Each wetland system was categorized in accordance with version 5.0 of the Ohio EPA's Ohio Rapid Assessment Method for Wetlands (ORAM) (Mack 2000, 2001). Field scoring forms are contained in Appendix D.

Ohio EPA has established three primary and three intermediate categories of wetland quality which are based on a wetland's size, its hydrologic function, the types of plant communities present, the physical structure of the wetland plant community and the wetland's level of disturbance (OAC 3745-1-54). The relationship between the various wetland categories and their respective ORAM scores is presented in Table 5. EnviroScience also evaluated the project area for the presence of state threatened and endangered species as part of the ORAM evaluation.

Table 5. ORAM Scores and Categories.

ORAM Score	ORAM Category	Description
0-29.9	Category 1	Lowest quality, and are generally characterized by hydrological isolation, lack of plant species diversity, insufficient habitat availability, and limited potential to perform major wetland functions.
30-34.9	Category 1 or 2 (Gray Zone)	ORAM score is insufficient to categorize wetland. In absence of a nonrapid method such as VIBI, assign the wetland to the higher functional category (Category 2)
35-44 9	Modified Category 2	Category 2 wetlands that may be of lower quality or degraded but have reasonable potential to be restored.
45-59.9	Category 2	Wetlands that have the capability to support a moderate wildlife community or maintain mid-level hydrological functions
60-64.9	Category 2 or 3 (Gray Zone)	ORAM score is insufficient to categorize wetland. In absence of a nonrapid method such as VIBI, assign the wetland to the higher functional category (Category 3)
65-100	Category 3	Highest quality, generally characterized by a high level of biological diversity and topographical variation, threatened or endangered species, large numbers of native species, or a high level of functional importance to its surroundings.

Category 3 wetlands have the highest quality, and are generally characterized by a high level of biological diversity and topographical variation, large numbers of native species, or a high level of functional importance to its surroundings. Category 2 wetlands have the capability to support a moderate wildlife community or maintain mid-level hydrological functions. Category 2 also includes wetlands that may be of lower quality or degraded but have reasonable potential to be restored (Modified Category 2). Category 1 wetlands are of the lowest quality, and are generally characterized by hydrological isolation, lack of plant species diversity, insufficient habitat availability, and limited potential to perform major wetland functions (OAC 3745-1-54).

Since the ORAM is a rapid assessment method, there are certain wetland scores which fail to clearly differentiate the wetland's functional category. The so-called "gray zone" wetlands fall between the definite scoring breaks between the categories. Ohio EPA requires that "gray zone" wetlands be considered as the higher category unless more detailed functional assessments such as the VIBI or AmphIBI are conducted on those wetlands. As a result of this requirement, wetlands whose scores fall between the breakpoints for Categories 1 and 2 (1 or 2 gray zone wetlands) wetlands will be considered as Category 2 wetland for purposes of this report. Wetlands whose scores fall between the breakpoints for Categories 2 and 3 wetlands (2 or 3 gray zone wetlands) will be considered a Category 3 wetland for purposes of this report.

2.1.3 Cowardin Wetland Classification

The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory uses the *Classification of Wetlands and Deepwater Habitats of the United States* to classify wetland habitat types (Cowardin *et al.* 1979). This classification system is hierarchical and defines five major systems – Marine, Estuarine, Riverine, Lacustrine, and Palustrine. The Palustrine system was the only type of wetland system identified within the project area and is defined as including all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean driven-derived salts is below 0.5 percent (Cowardin *et al.* 1979).

2.2 Other Waters

Other waters include ephemeral and open waters. These waters are broken down into two categories: 1) ponds and lakes; and 2) streams and rivers.

2.2.1 Ponds and Lakes

Palustrine systems other than wetlands, and lacustrine waters are addressed as ponds and lakes, respectively. These non-linear open waters may harbor important aquatic communities such as vegetated shallows (aquatic bed) and mud flats. They are classified according to Cowardin *et al.* (1979).

2.2.2 Streams and Rivers

Riverine systems are linear flowing waters bounded by a channel. Cowardin *et al.* (1979) divides these system into four groups, however, for the purpose of this report streams are placed into three regulatory types, listed below.

Ephemeral: An ephemeral stream only conveys runoff precipitation and meltwater. It is permanently located above the water table and is most often dry.

Intermittent: An intermittent stream is located below the water table for parts of the year, but does have dry periods.

Perennial: A perennial stream typically has flowing water throughout the entire year.

In addition to flow characteristics, the USACE has defined other regulatory categories that apply to streams, which are listed below (USACE and USEPA, 2007).

Traditional Navigable Waters (TNW): all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

Relatively Permanent Waters (RPW): non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months).

Non-Relatively Permanent Waters (Non-RPW): non-navigable tributaries of traditional navigable waters that are not relatively permanent where the tributaries typically do not have continuous flow at least seasonally (e.g., typically three months).

The Corps and USEPA will assert jurisdiction under the Clean Water Act on Traditional Navigable Waters (TNWs) and all wetlands adjacent to them, non-navigable tributaries of TNWs that are Relatively Permanent Waters (RPW) [i.e., tributaries that typically flow year-round or have continuous flow at least seasonally]; and wetlands that directly abut such tributaries. In addition, the agencies will assert jurisdiction over every water body that is not an RPW if that water body is determined (on the basis of a fact-specific analysis) to have a significant nexus with a TNW.

"A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological, integrity of a TNW. Principal considerations when evaluating significant nexus include the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands."

2.2.3 HHEI and QHEI

Data collection for all streams included the completion of either the Ohio EPA Headwater Habitat Evaluation Index (HHEI) for primary headwater habitat (PHWH) streams or the Qualitative Habitat Evaluation Index (QHEI) for larger streams. Biologists are Ohio EPA trained to assess streams using the QHEI and HHEI. Following the Ohio EPA guidance, any stream with a drainage area of less than or equal to one mi^2 (2.589 km^2) and pools with a maximum water depths less than or equal to 15.75 in (40 cm) were evaluated using the HHEI (Ohio EPA 2012). The QHEI was used to evaluate streams with drainage areas greater than one mi^2 and pools with maximum water depths greater than 15.75 in (40 cm; Ohio EPA 2006). The assessment location is representative of the stream/headwater within the project area.

3.0 LITERATURE REVIEW

3.1 USGS TOPOGRAPHIC MAP

The U.S. Geological Survey (USGS) 7.5-minute topographic series (West Point Quadrangle) is shown on Figure 2 (Appendix A). The preferred and alternate routes are depicted as partially forested. Elevations range from approximately 1,080 feet above mean sea level (AMSL) near onsite ponds and streams to approximately 1,250 feet AMSL in north portion of the proposed switchyard. Two (2) USGS named streams, Alder Lick Run and Bailey Run, are depicted crossing the central portion of the preferred and alternate routes. Three (3) strip mines are shown along the preferred and alternate routes. These strip mines are no longer active.

3.2 NWI MAP

The National Wetlands Inventory (NWI) map (West Point Quadrangle) of the project area is shown on Figure 3 in Appendix A. One (1) palustrine, emergent, persistent, seasonally flooded (PEM1C) is identified within the eastern portion of the preferred and alternate routes. This wetland corresponds to the delineated Wetland W-19. One (1) palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded (PSS1C) is identified in the eastern portion of the preferred and alternate routes. This wetland was not identified during the field survey. Three (3) palustrine, unconsolidated bottom, intermittently exposed (PUBG) deepwater areas are depicted within the eastern portion of the preferred and alternate routes. These deepwater systems correspond with the delineated Open Waters OW-2, OW-3, and OW-4, which are located in the areas depicted as strip mines.

3.3 COUNTY SOIL SURVEY

The project area is found on the *Soil Survey of Columbiana County, Ohio* and was accessed on the Soil Survey Geographic (SSURGO) Database (USDA Web Soil Survey, 2010) (Figure 4, Appendix A). Fifteen (15) soil types are depicted within the project area. One (1) of the soil types, Holly silt loam (HkA), is considered predominantly hydric within Columbiana County. All soil types are listed in Table 6.

Table 6. Soil Types Mapped Project Area.

Symbol	Soil Type	Status	Common Landform	Percent Hydric	Acres in Project Area	Percent Within Project Area
BkB	Berks channery silt loam, 2 to 6 percent slopes	Not Hydric	Hills	0	6.346	3.7
BkC	Berks channery silt loam, 6 to 15 percent slopes	Not Hydric	Hills	0	43.334	25.5
BkD	Berks channery silt loam, 15 to 25 percent slopes	Not Hydric	Hills	0	18.401	10.8
BkE	Berks channery silt loam, 25 to 40 percent slopes	Not Hydric	Hills	0	29.689	17.5
BpF	Bethesda very channery silt loam, 25 to 70 percent slopes	Not Hydric	N/A	0	8.264	4.9
CoB	Coshocton silt loam, 2 to 6 percent	Not Hydric	Hills	0	5.167	3.0
CoC	Coshocton silt loam, 6 to 15 percent slopes	Not Hydric	Hills	0	16.802	9.9
FbB	Fairpoint very channery silt loam, 0 to 8 percent slopes	Not Hydric	N/A	0	3.654	2.2
FbF	Fairpoint very chanery slit loam, 25 to 70 percent slops	Not Hydric	N/A	0	1.851	1.1
GnB	Gilpin silt loam, 2 to 6 percent lsoipes	Not Hydric	Hills	0	9.412	5.5
GnC	Gilpin silt loam, 6 to 15 percent slopes	Not Hydric	Hills	0	3.924	2.3
GoC	Gilpin-Coshocton silt loams, 6 to 15 percent slopes	Not Hydric	Hills	0	9.183	5.4
HkA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	Predominantly Hydric	Flood Plain	95	1.020	0.6
KeB	Keene silt loam, 2 to 6 percent slopes	Not Hydric	Hills	0	9.528	5.6
UkC2	Upshur-Berks complex, 6 to 15 percent slopes, eroded	Not Hydric	Hills	0	3.077	1.8

3.4 AERIAL PHOTOGRAPHY

A recent aerial photograph of the project area is shown on Figure 5 (Appendix A). The site is depicted as rural residential, agricultural, and forested land. The project area crosses several roads, including Osbourne Road, Fife Coal Road, Forbes Road, and Hibbets Mill Road. The surrounding land use consists of rural residential, agricultural, and forested land. Several open water areas are visible on the area and appear to correlate to the inactive strip mine locations.

3.5 OHIO NATURAL HERITAGE DATABASE

Data from the Ohio Department of Natural Resources (ODNR) Natural Heritage database was received on May 29, 2015. The Database indicated a record of the bowman's root (*Porteranthus trifoliatus*), a state threatened species, within a one (1) mile radius of the project area. No unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas are located within the project area.

3.6 U.S. FISH AND WILDLIFE SERVICE

The project area was examined for suitable habitat for federally listed species whose known range includes Columbiana County, Ohio. These species are the federally endangered Indiana bat (*Myotis sodalis*), the federally threatened northern long-eared bat (*Myotis septentrionalis*), the federal species of concern eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), the federal candidate species eastern massasauga (*Sistrurus catenatus catenatus*), and the federal species of concern bald eagle (*Haliaeetus leucocephalus*).

Living or dead trees with shedding or peeling bark or cavities may serve as roosting trees for the Indiana bat and/or the northern long-eared bat. In addition, sheds and barns may serve as roosting habitat for the northern long-eared bat. No potential winter hibernaculum, barns, or sheds are located within the project area. Several areas throughout the preferred and alternate routes are forested. Additionally, the southern portion of the proposed switchyard is forested. An in-depth habitat analysis was not performed, however; all onsite forested areas contained some trees that displayed suitable habitat features. Suitable habitat features include, but are not limited to, larger canopy trees, trees exhibiting peeling bark, holes, or crevices, open understory, and stream or wetland corridors. All tree clearing is recommended to occur within the USFWS approved seasonal clearing window of October 1 through March 31. If the seasonal clearing restriction cannot be followed, further coordination with the USFWS is recommended prior to clearing any trees within the project area.

The eastern hellbender is found in habitats with swift-running, fairly shallow, and highly oxygenated water. They require an abundance of large, flat rocks or logs for use as cover objects. The two (2) onsite perennial streams may provide adequate habitat for the eastern hellbender. Further coordination with the USFWS may be required prior to impacting these streams.

Preferred habitat for the eastern massasauga includes wet areas including wet prairies, marshes and low areas along rivers and lakes. Massasaugas also use adjacent uplands during part of the year. The majority of the project area is upland field and forest that is not preferable habitat for the eastern massasauga. The wetlands that are located within the project area are open and do not provide appropriate cover for the eastern massasauga.

The bald eagle nests in large trees near water. No bald eagle habitat was observed within the project area.

4.0 RESULTS

Thirty-six (36) sample plots were established within eight (8) natural communities. Two (2) of these communities are considered wetland. Table 7 summarizes the sample plot data.

Table 7. Sample Plot Results.

Sample Plot	Photo*	Community**	Hydrophytic Vegetation	Wetlands Hydrology	Hydric Soil	Status	Location
1	1	Agricultural Field				Non-Wetland	SP-1
2	2	PEM	X	X	X	Wetland	W-1
3	3	Forest				Non-Wetland	SP-3
4	4	PFO	X	X	X	Wetland	W-1
5	5	Forest				Non-Wetland	SP-5
6	6	PEM	X	X	X	Wetland	W-2
7	7	Forest				Non-Wetland	SP-7
8	8	PEM	X	X	X	Wetland	W-6
9	9	PEM	X	X	X	Wetland	W-8
10	10	PEM	X	X	X	Wetland	W-7
11	11	Forest				Non-Wetland	SP-11

Sample Plot	Photo*	Community**	Hydrophytic Vegetation	Wetlands Hydrology	Hydric Soil	Status	Location
12	12	Agricultural Field				Non-Wetland	SP-12
13	13	PEM	X	X	X	Wetland	W-9
14	14	Forest				Non-Wetland	SP-14
15	15	Forest	X			Non-Wetland	SP-15
16	16	PFO	X	X	X	Wetland	W-11
17	17	PEM	X	X	X	Wetland	W-12
18	18	Forest				Non-Wetland	SP-18
19	19	PEM	X	X	X	Wetland	W-13
20	20	Scrub-Shrub				Non-Wetland	SP-20
21	21	PEM	X	X	X	Wetland	W-15
22	22	PEM	X	X	X	Wetland	W-15
23	23	Maintained Lawn				Non-Wetland	SP-23
24	24	PEM	X	X	X	Wetland	W-17
25	25	Maintained Lawn				Non-Wetland	SP-25
26	26	Open field				Non-Wetland	SP-26
27	27	PEM	X	X	X	Wetland	W-18
28	28	PEM	X	X	X	Wetland	W-19
29	29	Old Field				Non-Wetland	SP-29
30	30	Open Field				Non-Wetland	SP-30
31	31	PEM	X	X	X	Wetland	W-20
32	32	Forest				Non-Wetland	SP-32
33	33	PEM	X	X	X	Wetland	W-21
34	34	Shrub-Scrub				Non-Wetland	SP-34
35	35	PEM	X	X	X	Wetland	W-22
36	36	PEM	X	X	X	Wetland	W-23

*photos are located in Appendix B

** PEM = Palustrine Emergent; PFO = Palustrine Forested.

Each sample plot, delineated wetland, and other waters are illustrated on Figure 5 (Appendix A). The following section describes general conditions found within each plant community and summarizes relevant information from the data forms, located in Appendix C

4.1 NON-WETLANDS

Six (6) upland communities exist within the project area and include agricultural field, maintained lawn, open field, old field, scrub-shrub, and forest. The agricultural field community is represented by Sample Plots 1 and 12 and are dominated by planted crops such as corn (*Zea mayes*, UPL) and alfalfa (*Medicago sativa*, UPL). Purple deadnettle (*Lamium purpureum*, UPL), common dandelion (*Taraxacum officinale*, FACU), and Faber's foxtail (*Setaria faberi*, FACU) are also growing among the planted crop species.

The forested vegetative community is represented by Sample Plots 3, 5, 7, 11, 14, 15, 18, and 32. Typical dominant tree species includes black cherry (*Prunus serotina*, FACU), red maple (*Acer rubrum*, FAC), northern red oak (*Quercus rubra*, FACU), honey-locust (*Gleditsia triacanthos*, FAC), eastern hop-hornbeam (*Ostrya virginiana*, FACU), shagbark hickory (Carya ovata, FACU), pin oak (*Quercus palustris*, FACW), and white pine (*Pinus strobus*, FACU). The shrub layer contains tree saplings, American elm (*Ulmus americana*, FACW), swamp white oak (*Quercus bicolor*, FACW), rambler rose (*Rosa multiflora*, FACU), green ash (*Fraxinus pennsylvanica*, FACW), American hornbeam (*Carpinus caroliniana*, FAC), and Allegheny blackberry (*Rubus allegheniensis*, FACU). Dominant species within the herbaceous layer of the forest includes garlic mustard (*Alliaria petiolata*, FACU), spinulose wood fern (*Dryopteris carthusiana*, FAC), Pennsylvania sedge (*Carex pennsylvanica*, UPL), hooded blue violet (*Viola sororia*, FACU), spotted touch-me-not (*Impatiens capensis*, FACW), false mermaidweed (*Floerkea proserpinacoides*, FAC), mayapple (*Podophylum peltatum*, FACU), and Virginia springbeauty (*Claytonia virginica*, FAC).

The maintained lawn community is represented by Sample Plots 23 and 25 and includes Kentucky bluegrass (*Poa pratensis*, FACU), great plantain (*Plantago major*, FACU), white clover (*Trifolium repens*, FACU), Virginia springbeauty, and common dandelion (*Taraxacum officinale*, FACU) in the herbaceous stratum.

The open field community is represented by Sample Plots 26 and 30 and is dominated by white clover and orchardgrass (*Dactylis glomerata*, FACU). Other species present within the herbaceous layer include common dandelion, English plantain (*Plantago lanceolata*, UPL), Canada goldenrod (*Solidago canadensis*, FACU), wrinkle-leaf goldenrod (*Solidago rugosa*, FACU), oldfield cinquefoil (*Potentilla simplex*, FACU), and

common yarrow (*Achillea millefolium*, FACU). Allegheny blackberry is present in small amounts in the shrub layer.

The old field community is represented by Sample Plot 29. The herbaceous layer was dominated by garlic mustard and Canada goldenrod. The shrub stratum contained rambler rose and the tree layer had small amounts of sugar maple (*Acer saccharum*, FACU), black cherry, and gray birch (*Betula populifolia*, FAC).

Sample Plots 20 and 34 represent the scrub-scrub community and includes black cherry in the tree stratum. The shrub layer is dominated by crabapple (*Malus* sp., NI) and rambler rose. Common herbaceous plants include false mermaidweed, Virginia springbeauty, a grass (*Poa* sp., NI), an aster (*Symphyotrichum* sp., NI), common yarrow, and oldfield cinquefoil.

4.2 WETLANDS

Twenty-three (23) wetlands were identified and delineated within the project area. The onsite portion of these wetlands consist of palustrine emergent (PEM) and palustrine forested (PFO) vegetation. The delineated wetlands have been categorized using the Ohio Rapid Assessment Method for Wetlands v.5.0 (ORAM); scoring forms are included in Appendix D. Wetland results are given in Table 8 and are briefly described in the following section. Wetland size has been determined for areas within the project area. Wetlands are illustrated on Figure 5 (Appendix A).

Table 8. Wetland Results within the Project Area.

Wetland	Photo*	Cowardin Classification	ORAM Score	ORAM Category	Size within Project Area (acres)	Location within the Project
W-1	37-38	PEM/PFO	47.5	Category 2	0.587	Switchyard, Preferred & Alternate
W-2	39	PEM	40	Modified 2	0.018	Preferred & Alternate
W-3	40	PEM	40	Modified 2	0.002	Preferred & Alternate
W-4	41	PEM	40	Modified 2	0.001	Preferred & Alternate
W-5	42	PEM	40	Modified 2	0.038	Preferred Route
					0.058	Alternate Route
W-6	43	PEM	47	Category 2	0.406	Alternate Route

Wetland	Photo*	Cowardin Classification	ORAM Score	ORAM Category	Size within Project Area (acres)	Location within the Project
W-7	44	PEM	46	1 or 2 gray zone	0.049	Alternate Route
W-8	45	PEM	46	1 or 2 gray zone	0.012	Alternate Route
W-9	46	PEM	46	Category 2	0.040	Preferred Route
W-10	47	PFO	47.5	Category 2	0.101	Preferred Route
W-11	48	PFO	47.5	Category 2	0.510	Preferred Route
W-12	49	PEM	29.5	Category 1	0.012	Preferred Route
W-13	50	PEM	47	Category 2	0.192	Preferred Route
W-14	51	PEM	48	Category 2	0.002	Preferred Route
W-15	52	PEM	23	Category 1	0.158	Preferred Route
					0.261	Alternate Route
W-16	53	PEM	43	Modified 2	0.139	Preferred & Alternate
W-17	54	PEM	43	Modified 2	0.706	Preferred & Alternate
W-18	55	PEM	29	Category 1	0.031	Preferred & Alternate
W-19	56	PEM	40	Modified 2	0.173	Preferred & Alternate
W-20	57	PEM	14	Category 1	0.008	Preferred & Alternate
W-21	58	PEM	32	1 or 2 gray zone	0.019	Preferred & Alternate
W-22	59	PEM	32	1 or 2 gray zone	0.138	Preferred & Alternate
W-23	60	PEM	32	1 or 2 gray zone	0.013	Preferred & Alternate
Total Wetland					**3.674**	
Total Wetland Preferred Route					**2.301**	
Total Wetland Alternate Route					**2.034**	

*photos are located in Appendix B

Wetland W-1 is a floodplain wetland along intermittent Stream S-2a and is comprised of palustrine emergent (PEM) and palustrine forested (PFO) vegetation. Sample Plot 2 and 4 represent these communities, respectively. Sample Plot 2 is dominated by skunk

cabbage (*Symplocarpus foetidus*, OBL) and spotted touch-me-not in the herbaceous layer. The shrub layer contains a small amount of rambler rose. Sample Plot 4 contains red maple, green ash, American elm, and white oak in the tree layer. The herbaceous layer contains rambler rose, hooded blue violet, Carolina spring beauty, spotted lady's thumb (*Persicaria maculosa*, FACW), spotted crane's bill (*Geranium maculatum*, FACU), an unknown moss species, and an unknown aster (*Asteraceae* sp.). This wetland assessed within the range of a Category 2 wetland using the ORAM scoring method. This score is a result of medium upland buffers, moderate surrounding land use, hydrologic sources and degree of saturation, sparse invasive species cover, and wetland microtopographic features.

Wetlands W-2, W-3, W-4, W-5, W-6, W-7, and W-8 are floodplain wetlands, associated with Stream S-5, and dominated by PEM vegetation These wetlands are represented by Sample Plots 6, 8, 9 and 10. Typical herbaceous vegetation within these wetlands includes spotted touch-me-not, skunk cabbage, fowl manna grass (*Glyceria striata*, OBL), a buttercup (*Ranunculus* sp.), fowl bluegrass (*Poa palustris*, FACW), crooked-stem American-aster (*Symphyotrichum prenanthoides*, FAC), and cream avens (*Geum virginianum*, FAC). Rambler rose is a common shrub within these wetlands. Wetlands W-2, W-3, W-4, W-5 were scored together due to their similar habitat, hydrologic connection, and proximity to one another. Wetland W7 and W-8 were also scored together for the same reasons. All six (6) wetlands assessed within the range of Category 2 wetlands using the ORAM. This score is a result of their medium upland buffers, low surrounding land use, hydrologic features (sources, connectivity, and degree of saturation), small amount of disturbances, and sparse amount of invasive species cover.

Wetlands W-9, W-10 and W-11 are floodplain wetlands along Stream S-13. Wetland W-9 is comprised of PEM vegetation and Wetlands W-10 and W-11 are comprised of PFO vegetation. Sample Plot 13 represents Wetland W-9. Dominant herbaceous vegetation within this wetland includes spotted touch-me-not and false mermaidweed.

Sample Plot 16 represents onsite vegetation within Wetlands W-10 and W-11. The tree stratum is dominated by red maple. Dominant shrub species include gray dogwood (*Cornus racemosa*, FAC) and rambler rose. The herbaceous stratum is dominated by spotted touch-me-not and sensitive fern. Wetland W-10 is lies adjacent to the intermittent Stream S-13a and is connected to W-11 by ephemeral Stream S-14. Wetland W-11 receives hydrology from ephemeral Stream S-16 and intermittent Stream S-13a. Wetlands W-9, W-10, and W-11 assessed within the range for Category 2 wetlands. This score resulted from wide upland buffers, moderate surrounding land use, low habitat alteration and substrate disturbance, and nearly absent invasive species cover.

Wetland W-12 is a small depressional PEM wetland located on the edge of a residential property south of Osborne Road. Wetland W-12 is represented by Sample Plot 17. This sample plot is dominated by fowl manna grass. Other common herbaceous plants include spotted touch-me-not, skunk cabbage, garden yellow rocket (*Barbarea vulgaris*, FACU), and rough bedstraw (*Galium asprellum*, OBL). This wetland assessed within the range of a Category 1 wetland due to small size, narrow upland buffers, degree of habitat alteration, and habitat recovery from past disturbances.

Wetlands W-13 and W-14 are floodplain PEM wetlands associated with intermittent Streams S-17 and S-18. Sample Plot 19 is representative of onsite vegetation within these wetlands. Dominant herbaceous vegetation includes fowl manna grass, spotted touch-me not, and single-vein sweet flag (*Acorus calamus*, OBL). These wetlands assessed within the range for Category 2 wetlands using the ORAM. Wetland W-13 has narrow upland buffers, moderate surrounding land use, fair habitat development, and evidence of past disturbances.

Wetland W-15 is a swale wetland dominated by PEM vegetation. Wetland W-15 is drained by Stream S-19. Sample Plots 21 and 22 represent typical onsite vegetation within this wetland. Dominant herbaceous plants include false mermaidweed, fowl bluegrass, crooked-stem American-aster, New England American-aster (*Symphyotrichum nove-angilae*, FACW), purple-leaf willow herb (*Epilobium coloratum,* FACW), and an American-aster (*Symphyotrichum* sp.). This wetland assessed within the range of a Category 1 or 2 gray zone due to its small size, intensity of surrounding land use, and recovery from past disturbances.

Wetlands W-16 and W-17 are PEM wetlands within the Alder Lick Run riparian area. Sample Plot 24 is representative of these wetlands. The dominant herbaceous plants within these wetlands includes lamp rush (*Juncus effusus*, FACW) and shallow sedge (*Carex lurida*, OBL). Other herbaceous plants include common fox sedge (*Carex vulpinoidea*, OBL) and narrow-leaf cattail (*Typha angustifolia*, OBL). This wetland assessed within the range of a Modified 2 wetland. This wetland is relatively large with medium buffers, moderate surrounding land use, and has a high degree of connectivity to jurisdictional streams. However, these wetlands have a moderately high degree of disturbance due to proximate agricultural practices.

Wetland W-18 is a depressional PEM associated with ephemeral Stream S-22. Sample Plot 27 is representative of this wetland. Typical herbaceous vegetation includes single-vein sweetflag, fowl manna grass, spotted-touch-me-not, deer tongue rosette grass (*Dichanthelium clandestinum*, FAC), cottongrass bullrush (*Scirpus cyperinus*, FACW), a sedge (*Carex* sp., NI), and a goldenrod (*Solidago* sp., NI). This wetland scored within the range of an 1 using the ORAM. This score is a result of the small size of the wetland, its

medium buffers with a mixture of high and low surrounding land use, and past disturbance.

Wetland W-19 is a floodplain wetland along Bailey Run. Typical onsite characteristics are represented by Sample Plot 28. The herbaceous layer is dominated by reed canary grass (*Phalaris arundinacea*, FACW), skunk cabbage, and stinging nettle (*Urtica dioica*, FACU). The shrub layer contained rambler rose, an elderberry (*Sambucus* sp.), and Atlantic ninebark (*Physocarpus opuliformis*, FACW). This wetland assessed within the range of a Modified 2 using the ORAM. This is a result of the degree of habitat and substrate disturbance as well as extensive invasive species cover.

Wetland W-20 is a depressional PEM located within an agricultural field. Sample Plot 31 represents typical onsite vegetation. The herbaceous layer is dominated by lamp rush, common fox sedge, and white clover. This wetland assessed within the range of a Category 1 wetland due to its small size, narrow upland buffers, moderately high level of surrounding land use, and degree of disturbance.

Wetlands W-21, W-22, and W-23 are depressional wetlands located within a scrub-shrub setting along the east side of Hibbetts Mill Road. These wetlands are represented by Sample Plots 33, 55, and 36. Dominant vegetation within these wetlands include deer-tongue rosette grass, lamp rush, arrow-leaf tear thumb (*Persicaria sagittata*, OBL), spotted trumpetweed (*Eutrochium maculatum*, FACW), and Allegheny blackberry (*Rubus allegheniensis*, FACU). These wetlands were scored together and assessed within the range of 1 or 2 gray zone. These wetlands were relatively small, with medium buffers, and low surrounding land use. Additionally these wetlands had poor to fair habitat development, are recovering from past disturbances, and scored low with regard to hydrologic characteristics.

4.3 STREAMS AND RIVERS

Two (2) USGS-named perennial streams, twelve (12) intermittent streams, and eleven (11) ephemeral streams were identified and delineated within the project area. The results are depicted in Table 9 and illustrated on Figure 5 (Appendix A). Ephemeral and intermittent streams have been assessed using the Primary Headwater Habitat Evaluation Index (HHEI) and perennial streams were assessed using the Qualitative Habitat Evaluation Index (QHEI); the scoring forms are included in Appendix E. Each stream classification, based on the QHEI or HHEI score, is located in Table 9. Locations of these streams are depicted in Appendix A, Figure 5. Representative photographs are included in Appendix B, and stream habitat data forms are provided in Appendix E.

Table 9. Stream Results within the Project Area.

Stream	Photos*	Type	Average Bankfull Width (feet)	Average Depth at Time of Survey (inch)	Length Within Project Area (linear feet)	Area Within Project Area (acres)	QHEI/ HHEI Score	Location within the Project
Alder Lick Run	61	Perennial	10	8	244	0.056	29.5	Preferred & Alternate
Bailey Run	62	Perennial	8	6	206	0.038	57	Preferred & Alternate
S-1	63	Ephemeral	1	0	1	0.001	24	Switchyard
S-2 a	64	Intermittent	3	3	642	0.044	31	Switchyard, Preferred, & Alternate
S-2 b					64	0.004		Preferred & Alternate
S-3	65	Intermittent	2	3	98	0.005	21	Switchyard
S-4	66	Intermittent	3	2	21	0.001	33	Preferred & Alternate
S-5 a	67	Intermittent	3	4	860	0.059	50	Preferred & Alternate
S-5 b					260	0.018		Alternate
S-5 c					187	0.013		Alternate
S-5 d					18	0.001		Alternate
S-5 e					11	0.001		Alternate
S-6	68	Ephemeral	3	0	103	0.007	11	Alternate
S-7	69	Intermittent	3	0.5	313	0.021	30	Alternate
S-8	70	Ephemeral	4	0	42	0.004	25	Alternate
S-9	71	Ephemeral	2	0	273	0.013	30	Alternate
S-10	72	Intermittent	4	2	416	0.038	39	Alternate
S-11	73	Ephemeral	2	0	66	0.003	35	Alternate
S-12	74	Ephemeral	2	0	25	0.001	26	Alternate
S-13 a	75	Intermittent	4	2	500	0.046	50	Preferred
S-13 b					554	0.051		
S-14	76	Ephemeral	1	0	27	0.001	17	Preferred
S-15	77	Ephemeral	2	0	31	0.001	17	Preferred
S-16	78	Ephemeral	1	0	73	0.002	14	Preferred
S-17	79	Intermittent	4	2	176	0.016	37	Preferred
S-18	80	Intermittent	4	3	255	0.023	41	Preferred

Stream	Photos*	Type	Average Bankfull Width (feet)	Average Depth at Time of Survey (inch)	Length Within Project Area (linear feet)	Area Within Project Area (acres)	QHEI/ HHEI Score	Location within the Project
S-19	81	Intermittent	3	3	115	0.008	31	Preferred & Alternate
S-20 a	82	Ephemeral	2	0	4	0.001	17	Preferred & Alternate
S-20 b					38	0.002		
S-21	83	Intermittent	2	1	33	0.002	16	Preferred & Alternate
S-22	84	Ephemeral	1	1	68	0.002	16	Preferred & Alternate
S-23	85	Intermittent	4	3	228	0.021	47	Preferred & Alternate
Total Stream					**5,952**	**0.504**		
Total Preferred Route					**3,034**	**0.302**		
Total Alternate Route					**3,775**	**0.326**		

*photos are located in Appendix B

The onsite streams are mostly formed in the either the valleys throughout the project area or are formed as erosional channels along steep hillsides. The stream systems associated with Streams S-2, S-3, S-7, S-9, and S-10 are draining south and west into an unnamed tributary of Yellow Creek. The stream systems associated within Streams S-1, S-13, S-17, and S-19 area draining east and south into Alder Lick Run. Alder Lick Run crosses through the preferred and alternate easement routes and is shown flowing south through an inactive strip mined area. Bailey Run also flows south through the preferred and alternate routes. Bailey Run is also shown within an area described as strip mine. All onsite waters are flowing south an eventually into Little Yellow Creek. Little Yellow Creek is a tributary to the Ohio River. Assessments of the onsite streams ranked Alder Lick Run as 'very poor' and Bailey Run as 'good' using the narrative rating of the QHEI. All other onsite streams were assessed using the HHEI. Assessments of the onsite portions of these streams resulted in Class I and Class II Primary Headwater Habitat streams. None of the onsite streams would be considered high quality or waters of special concern.

4.4 Ponds and Lakes

A portion of four (4) open water aquatic resources were identified within the project area. The results are depicted in Table 10 and illustrated on Figure 5 (Appendix A).

Table 10. Stream Results within the Project Area.

Open Water	Photo*	Type	Area within project area (acres)
OW-1	86	Lacustrine Open Water	0.015
OW-2	87	Lacustrine Open Water	0.220
OW-3	88	Lacustrine Open Water	0.001
OW-4	89	Lacustrine Open Water	0.234
Total Open Water			**0.470**

Onsite open water ponds are associated with the inactive strip mine sites. These open water areas are located at the bottoms of steep gorges with rocky slopes.

5.0 ASSUMPTIONS AND DISCLAIMERS

The constant influence of human activity on the project area can result in a rapid change of ecological boundaries. Over time, natural succession and changes in hydrology can also affect their boundaries. Precision of GPS collected data is subject to variation caused by canopy cover, atmospheric interference and satellite configuration. Because slight inaccuracies are possible, all acreages and derived boundaries presented in this report are approximate.

The results and conclusions contained in this report apply to the year and date in which the data were collected. This report is not considered officially valid until it is approved by the Corps. The report is then valid for a period of five years. Refer to the Corps' Regulatory Guidance Letter # 94-1 (23 May 1994).

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Appendix A:

Figures

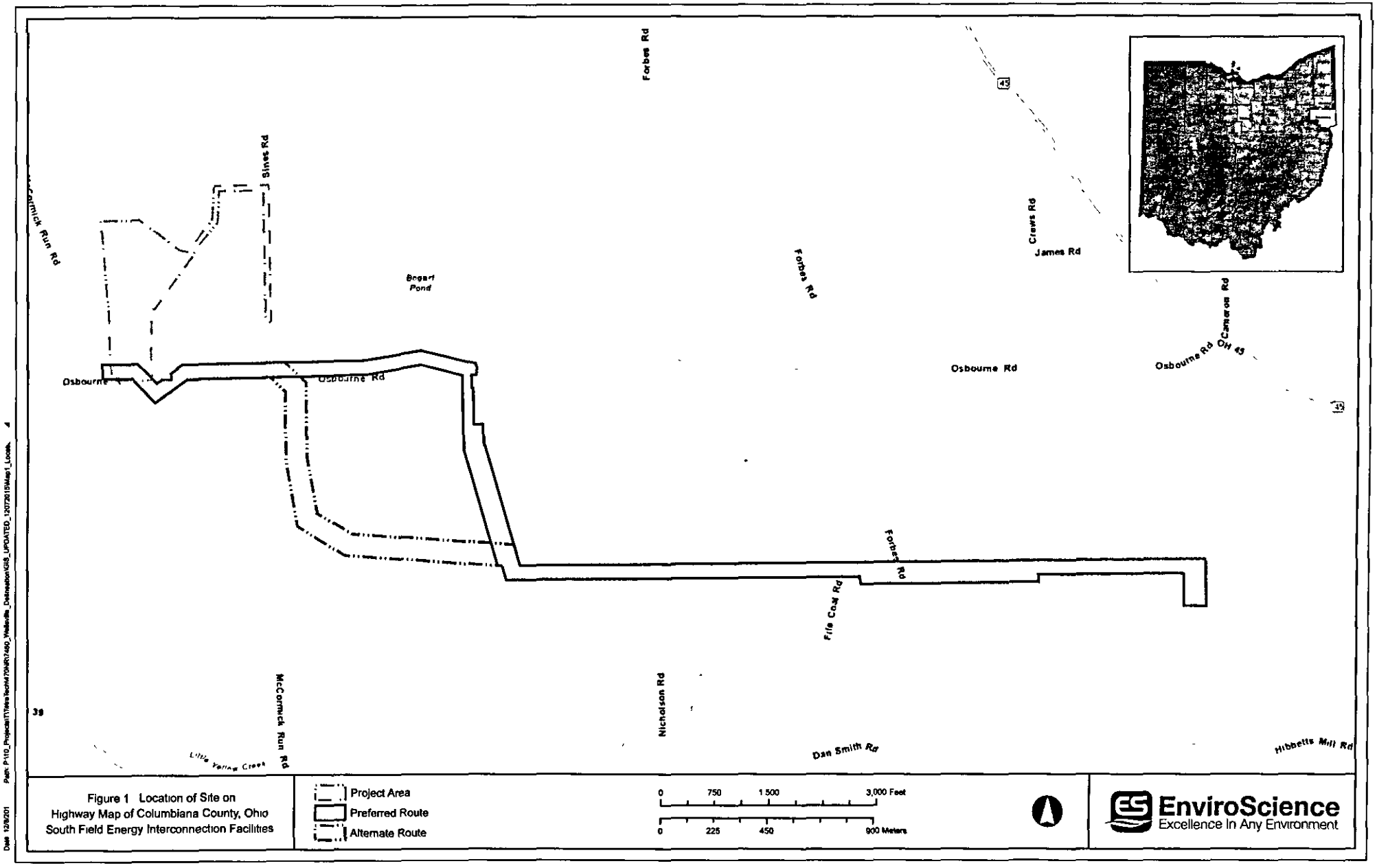

Figure 1 Location of Site on Highway Map of Columbiana County, Ohio South Field Energy Interconnection Facilities

Project Area
Preferred Route
Alternate Route

0 750 1,500 3,000 Feet
0 225 450 900 Meters

EnviroScience
Excellence In Any Environment

Basemap courtesy of Esri.

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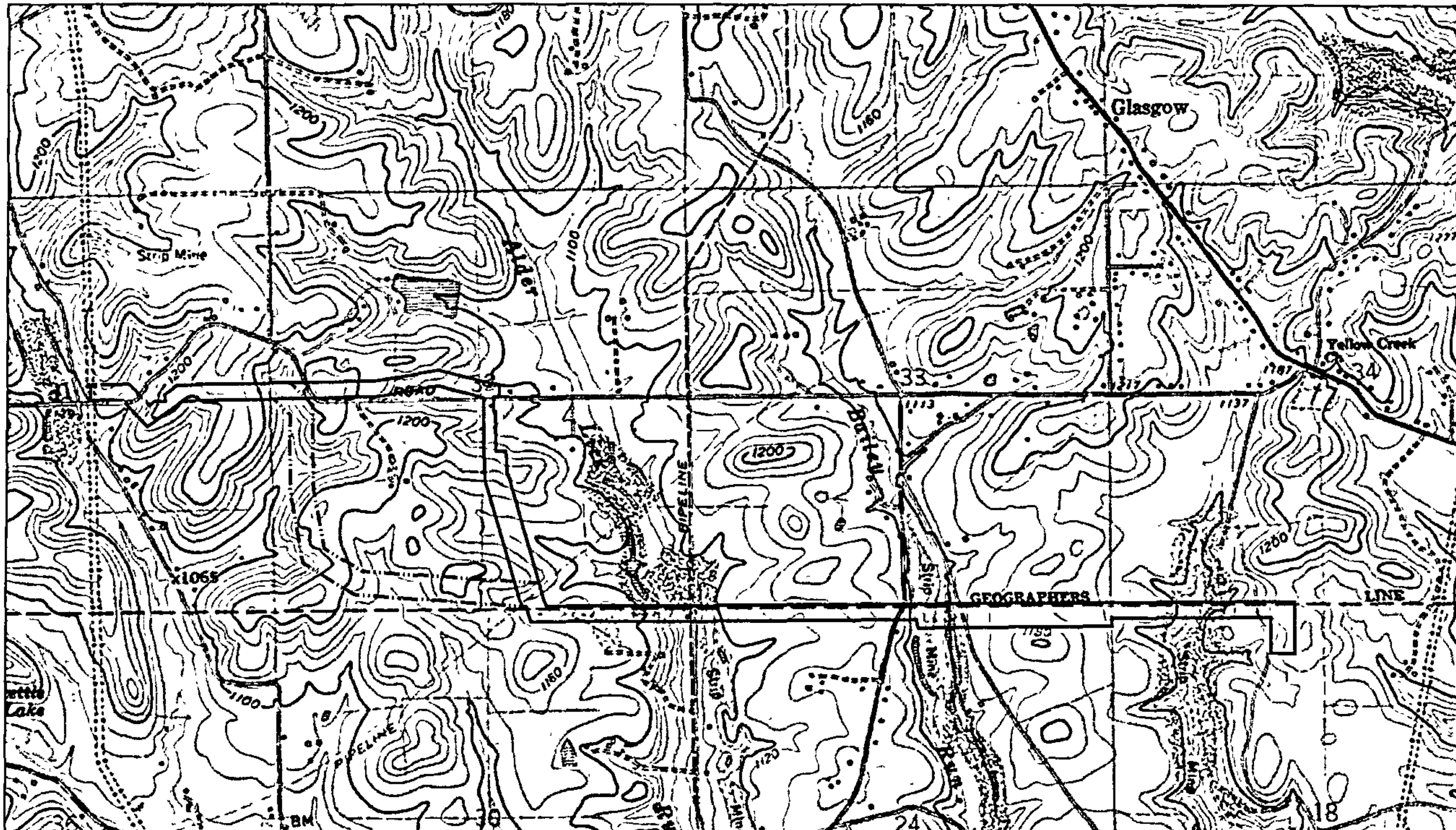

Figure 2 USGS 7 5-minute
Topographic Map of West Point Quadrangle
South Field Energy Interconnection Facilities

EnviroScience
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Basemap courtesy of National Geographic Society (2013)

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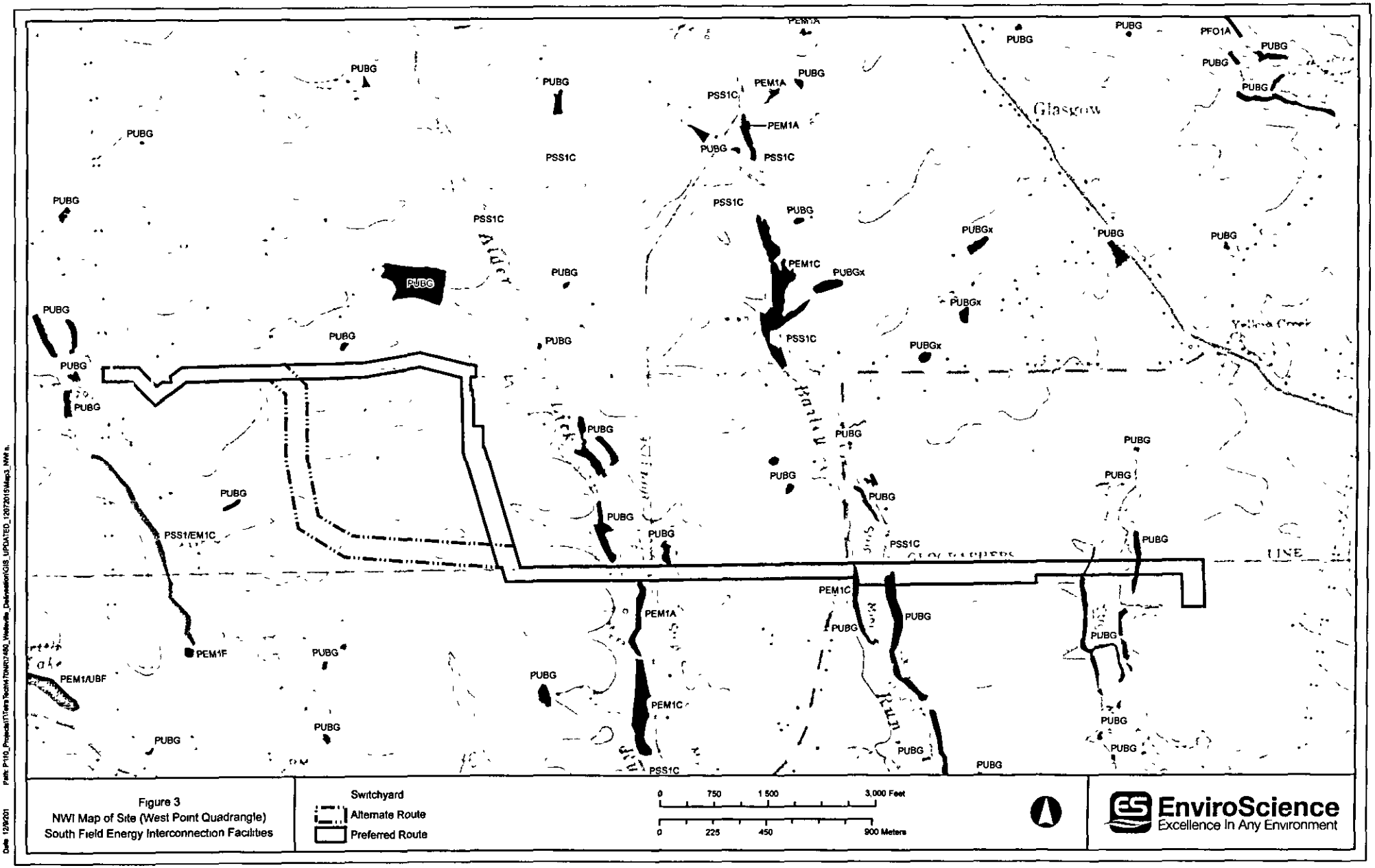

Figure 3
NWI Map of Site (West Point Quadrangle)
South Field Energy Interconnection Facilities

Basemap courtesy of National Geographic Society (2013). NWI data courtesy of USFWS (current as of May 28 2015)

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Date: 12/9/201

Figure 4
Soil Map of Site In Columbiana County, Ohio
South Field Energy Interconnection Facilities

Switchyard
Alternate Route
Preferred Route

0 750 1 500 3,000 Feet
0 225 450 900 Meters

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Basemap courtesy of Esri. Soil data courtesy of SSURGO

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Figure 5 Site Map Overview of
Wetlands and Other Water Resources
South Field Energy Interconnection Facilities

Basemap courtesy of Esri

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Date: 12/8/201

Figure 5 01. Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.01

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Basemap courtesy of Esri.

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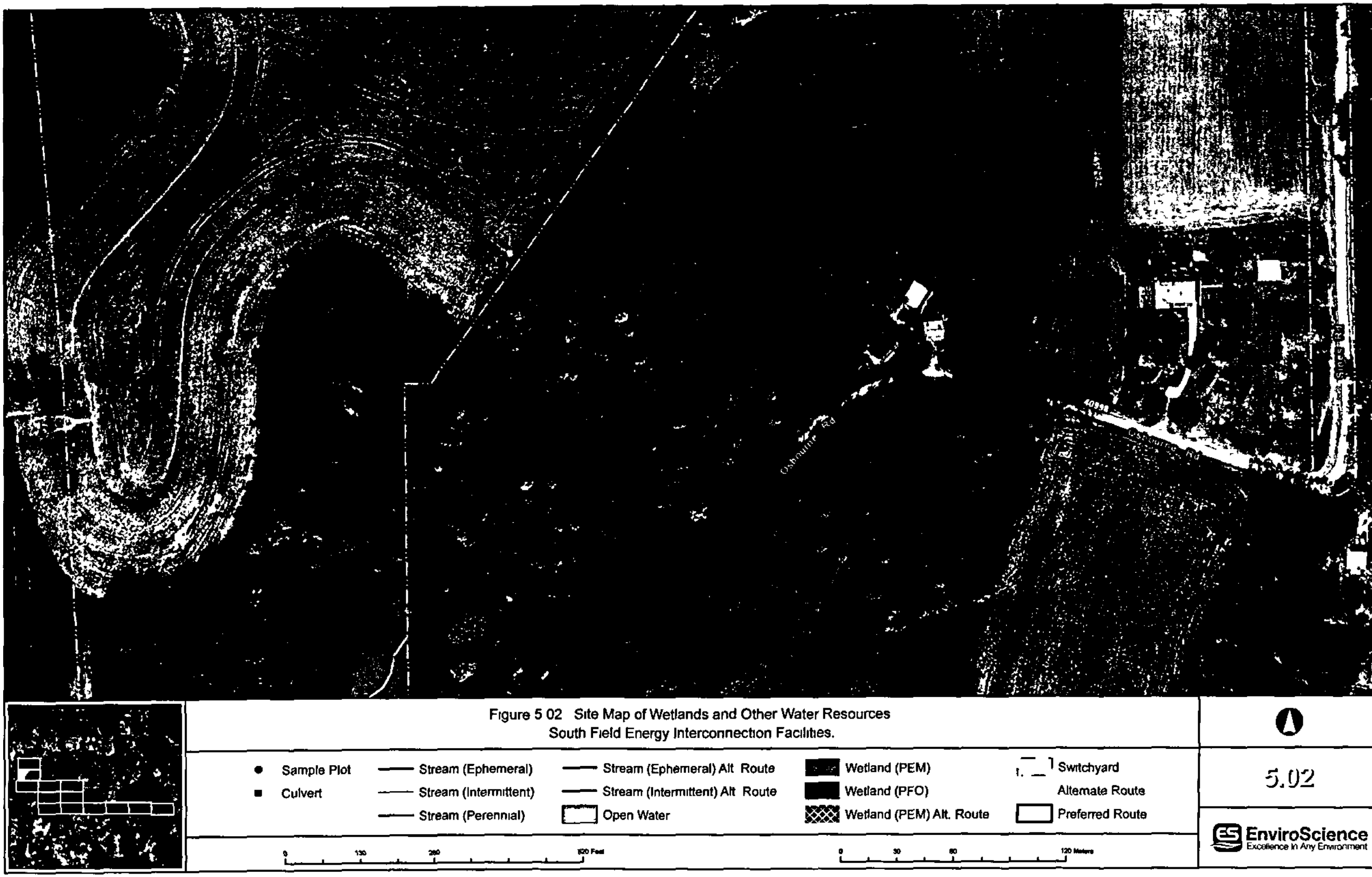

Figure 5 02 Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities.

Basemap courtesy of Esri.

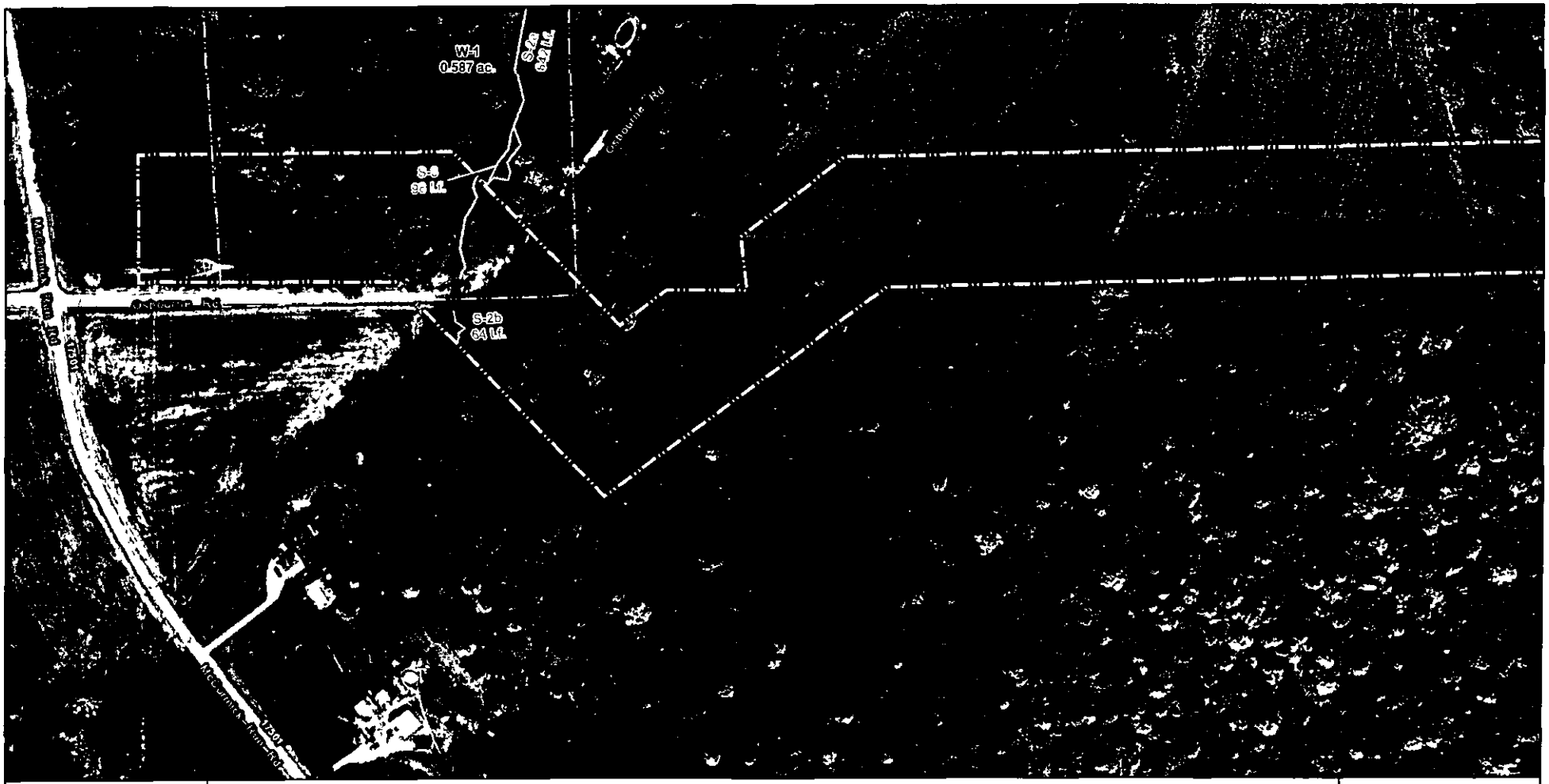

Figure 5 03. Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt. Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.03

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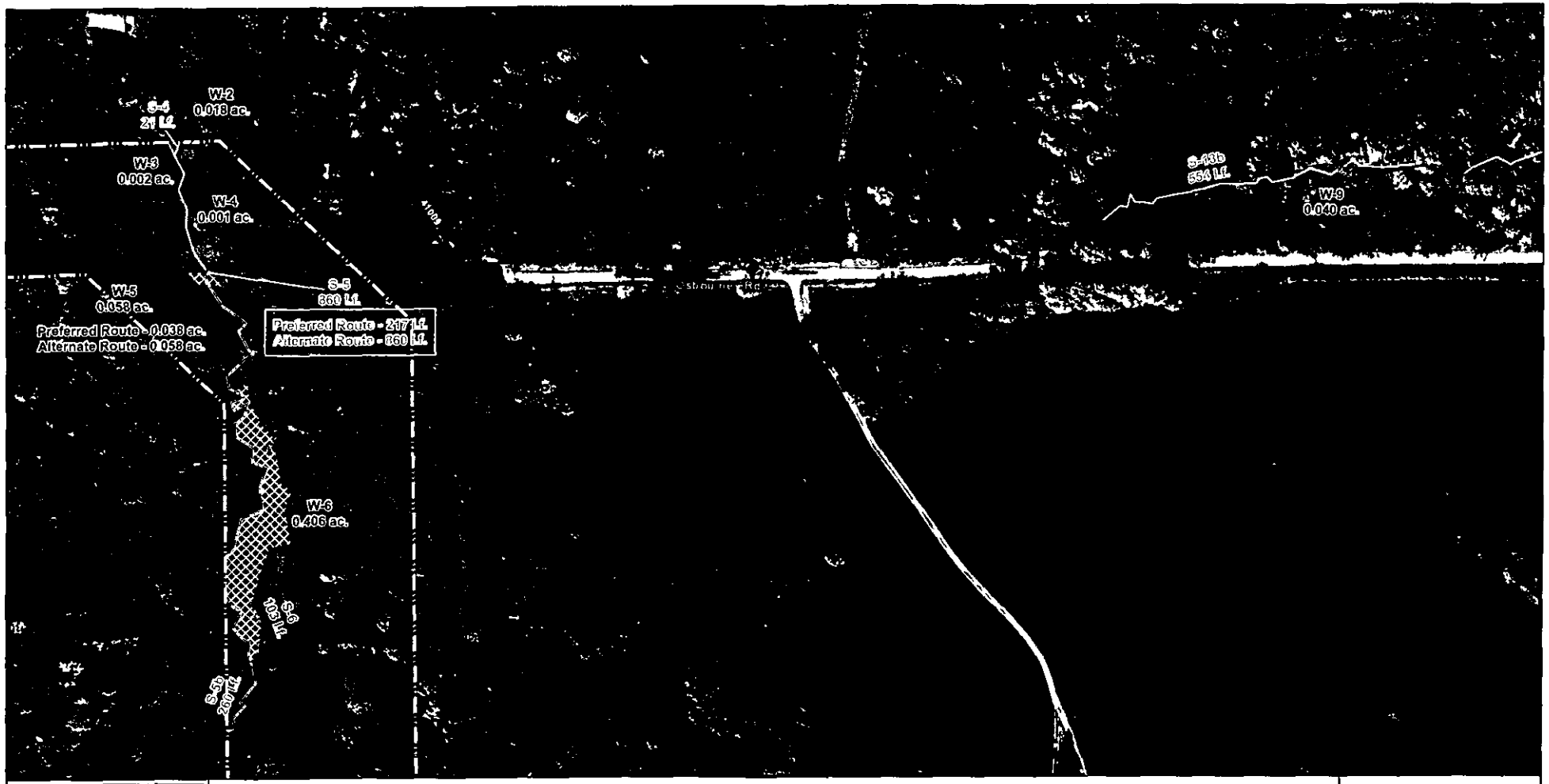

Figure 5 04. Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities.

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt. Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.04

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Path: P:\10_Projects\TI\Team\Tech\470\RR7480_Wellsville_Delineation\GIS_UPDATED_12072015\Maps_Site I

Date: 12/14/20

Basemap courtesy of Esri.

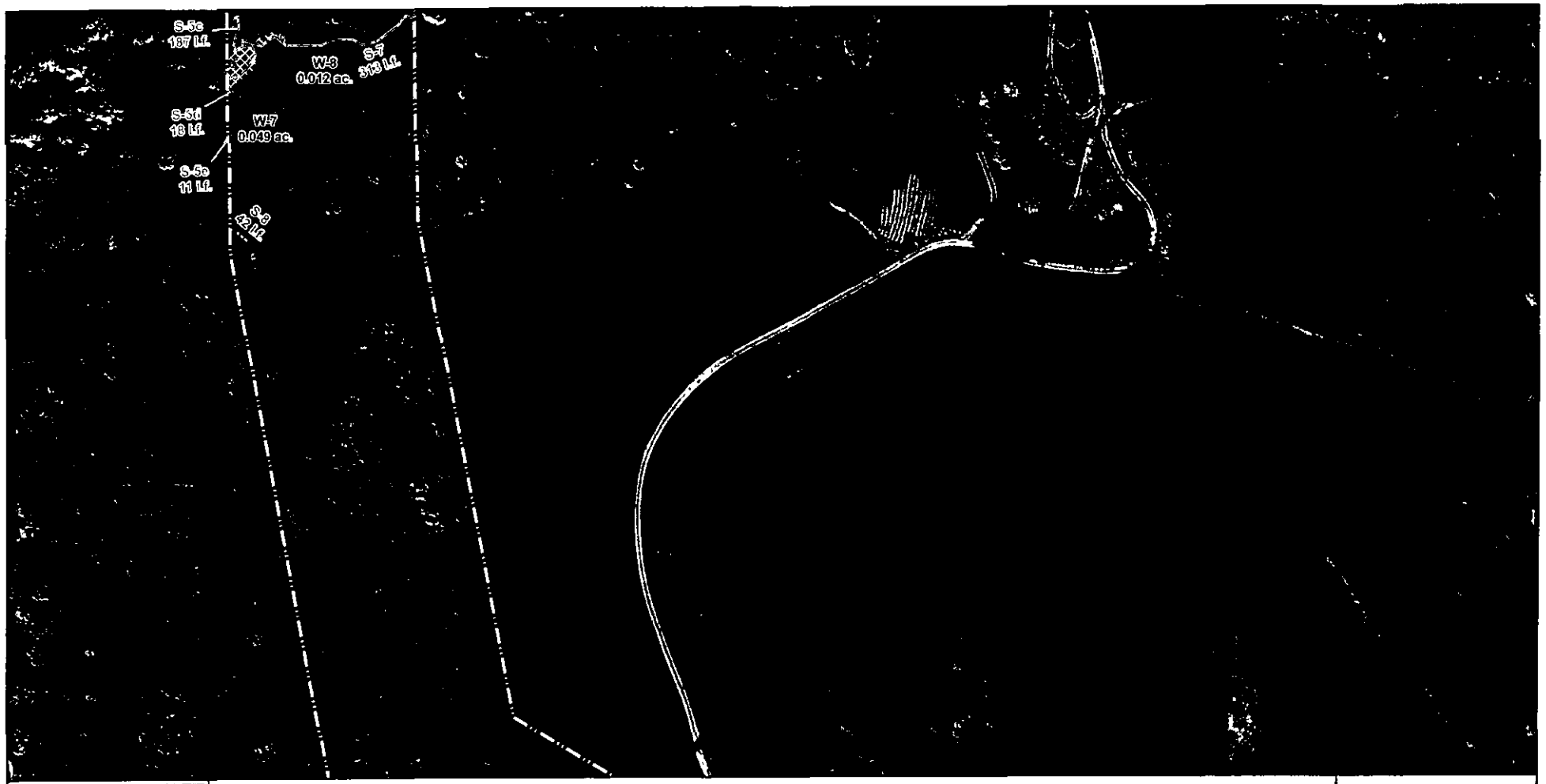

Figure 5 05. Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt. Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.05

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Basemap courtesy of Esri.

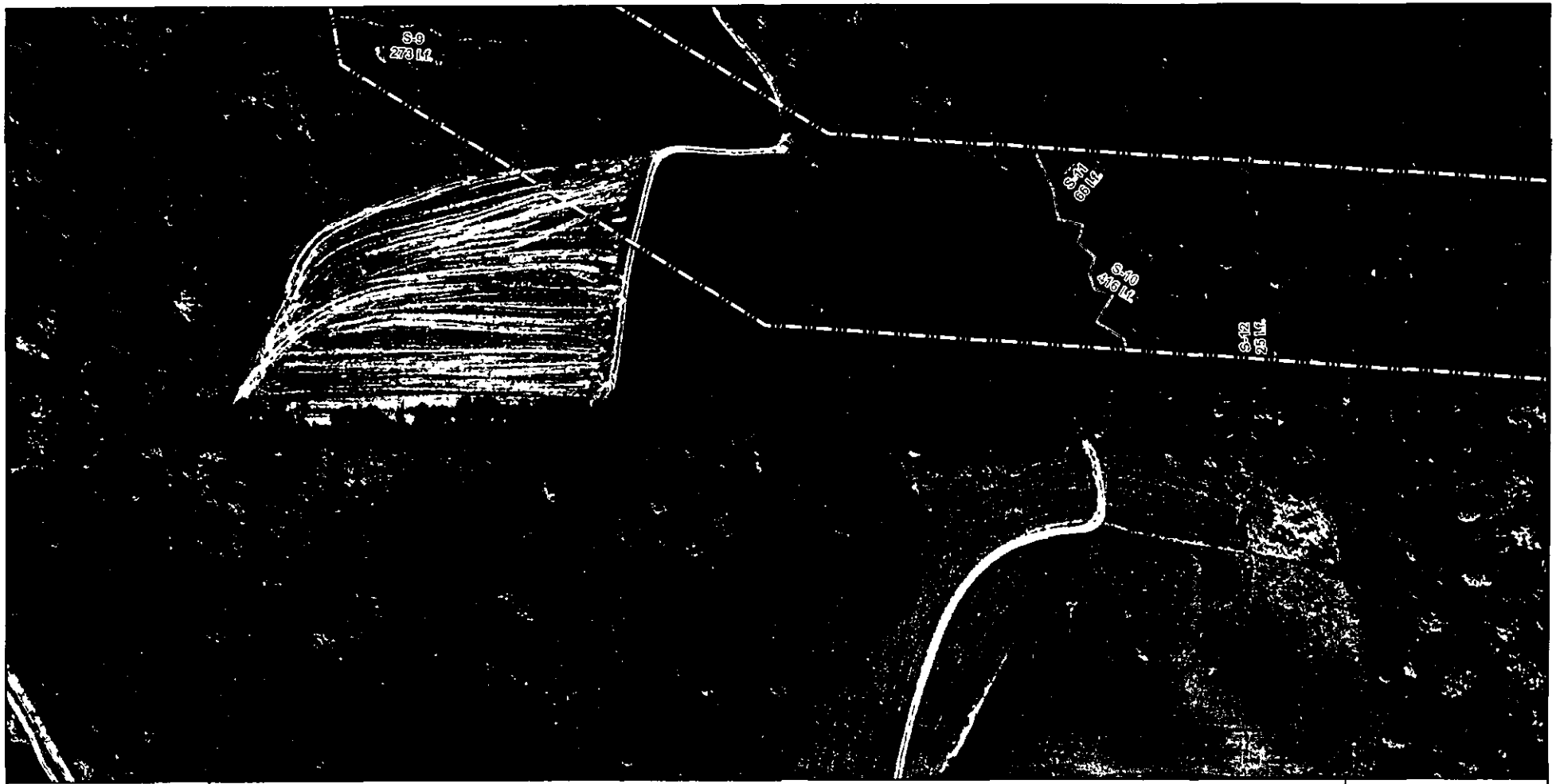

Figure 5 06 Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt. Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.06

EnviroScience
Excellence in Any Environment

Date: 12/14/20... Path: P:\10_Projects\1\Tasks\Task\70\NR\17480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site.h...

Basemap courtesy of Esri.

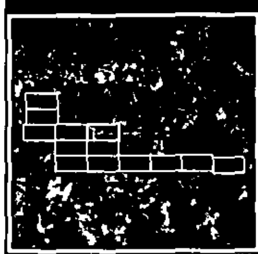

Figure 5 07. Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities.

- ● Sample Plot
- ■ Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.07

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Basemap courtesy of Esri.

Date 12/14/20; Path P:\110_Projects\T\TetraTech\470NR17490_Wellsville_Delineation\GIS_UPDATED_12072015\Maps5_Site n

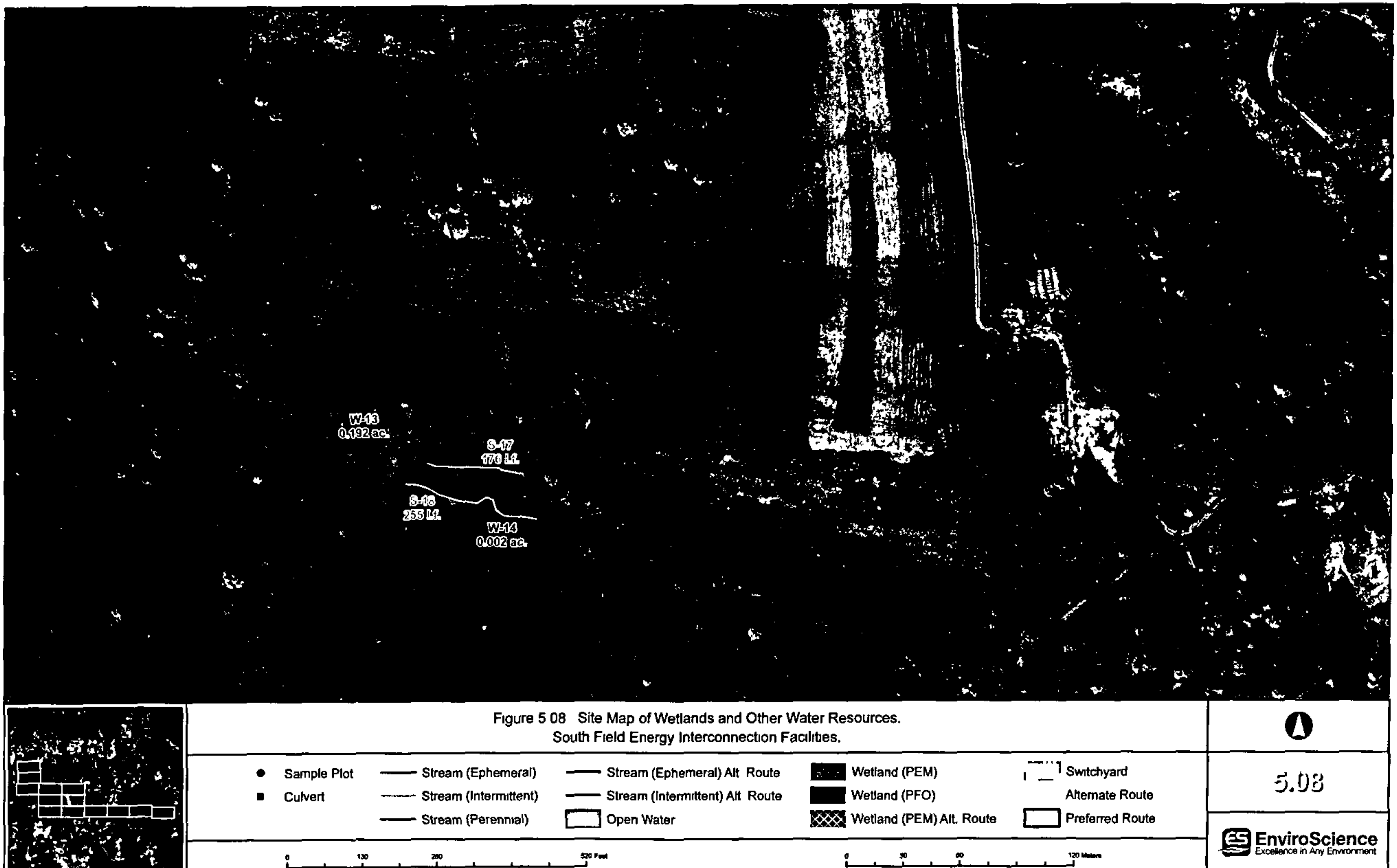

Figure 5 08 Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

Basemap courtesy of Esri

Date 12/14/20 Path: P:\10_Projects\T\TetraTech\4704\R17480_Wellsville_Delineation\GIS_UPDATED_12072015\Maps5_Site.

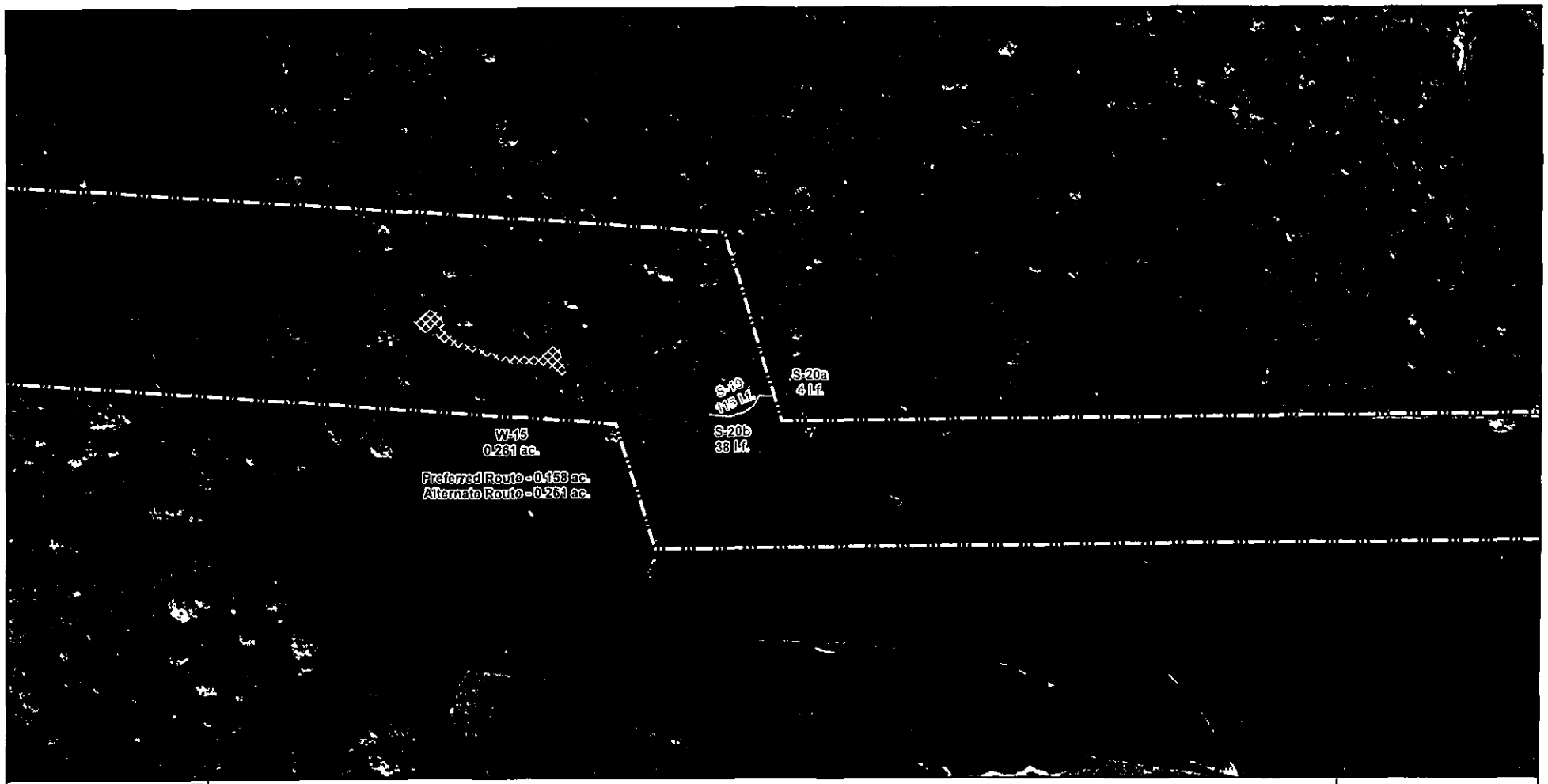

Figure 5.09 Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities.

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.09

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Basemap courtesy of Esri.

Date: 12/14/20... Path: P:\10_Projects\TVtera Tech\47GNR7400_Waterlife_Delineation\GIS_UPDATED_12072019\Map5_Site...

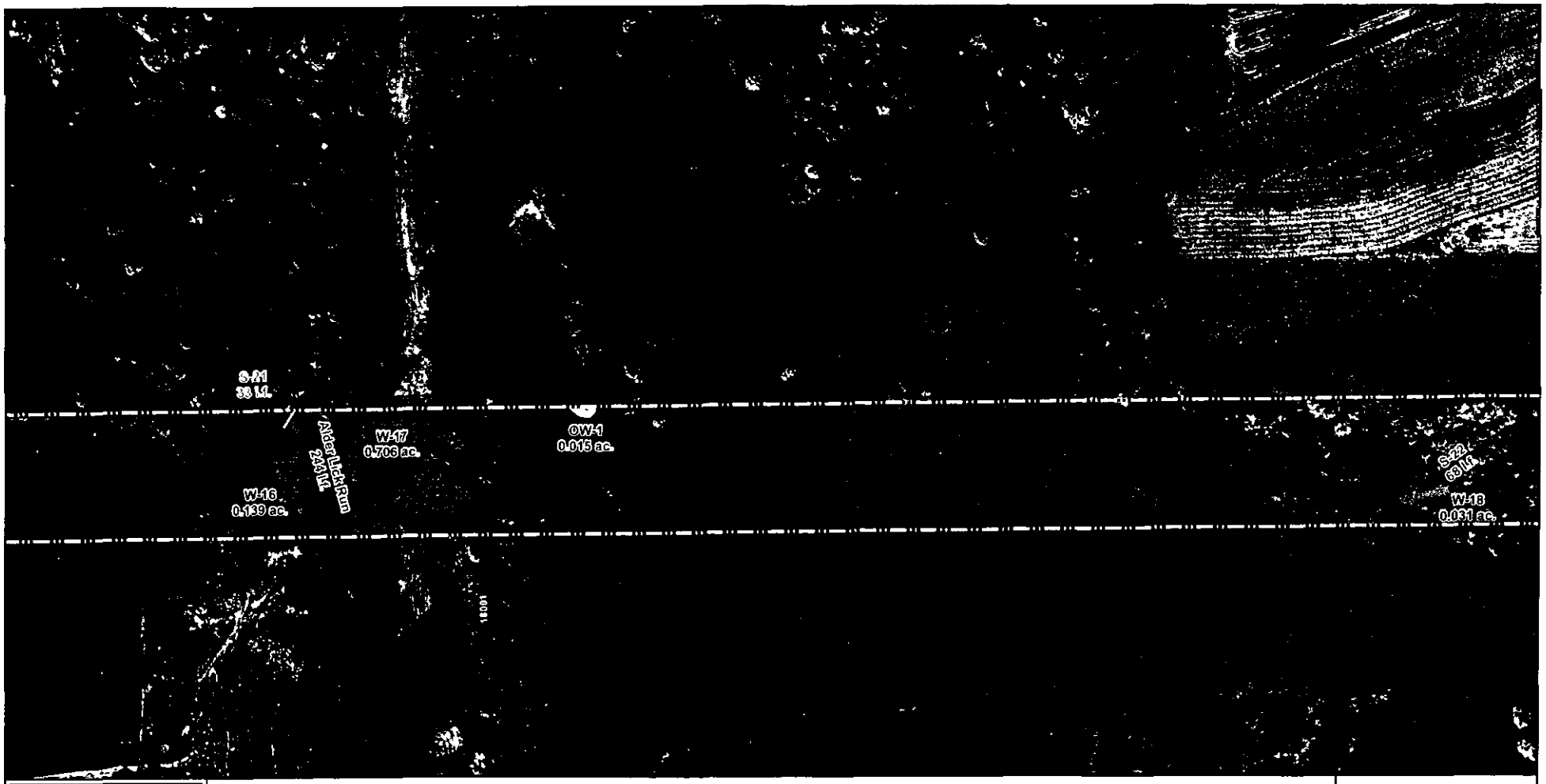

Figure 5.10. Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.10

EnviroScience
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Path: P:\15_Projects\TVaraTech\470NR\71480_Wetlands_Delineation\GIS_UPDATED_12072015\Maps\5_Site...

Date: 12/14/2L

Basemap courtesy of Esri.

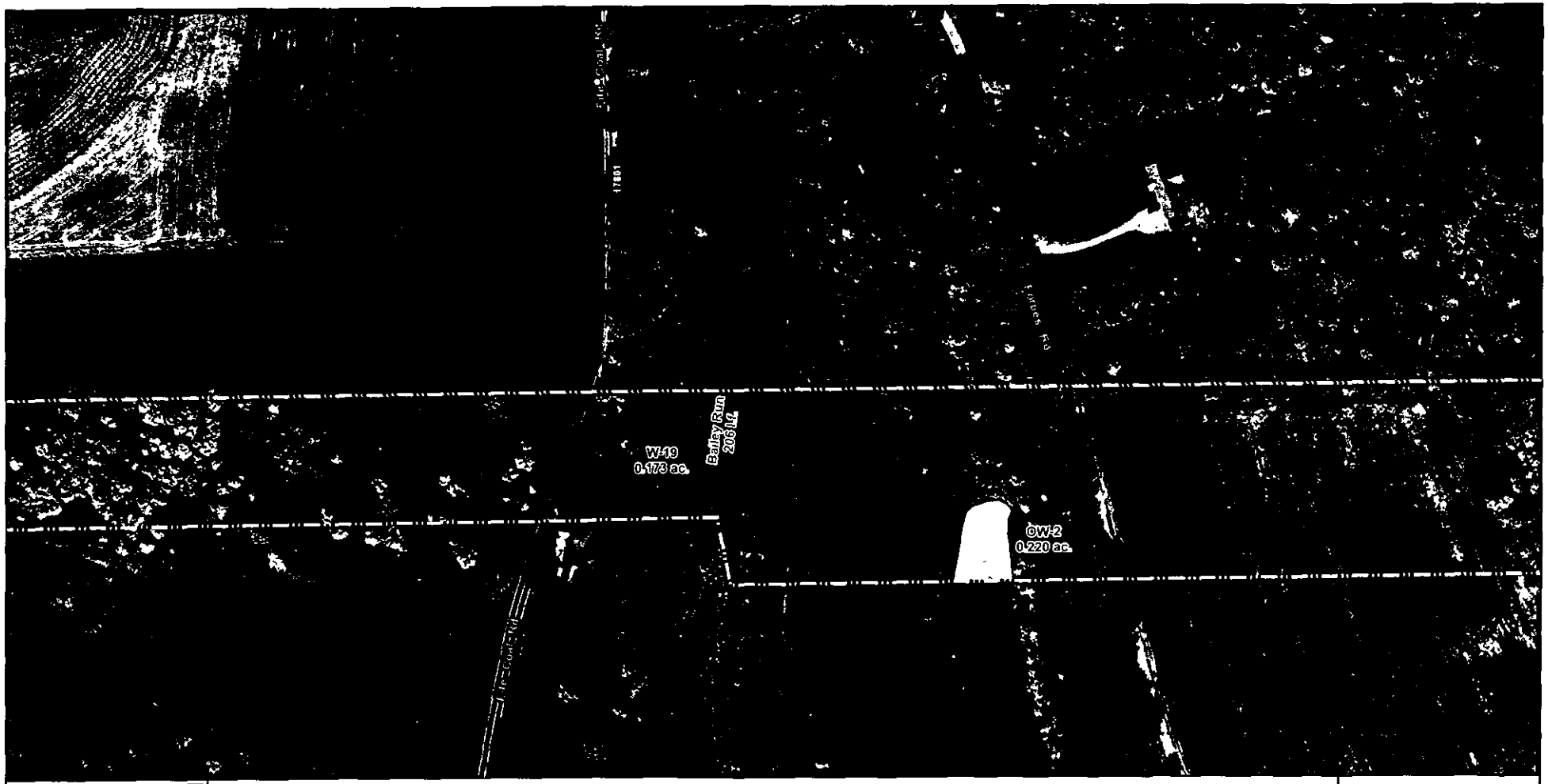


Figure 5.11. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

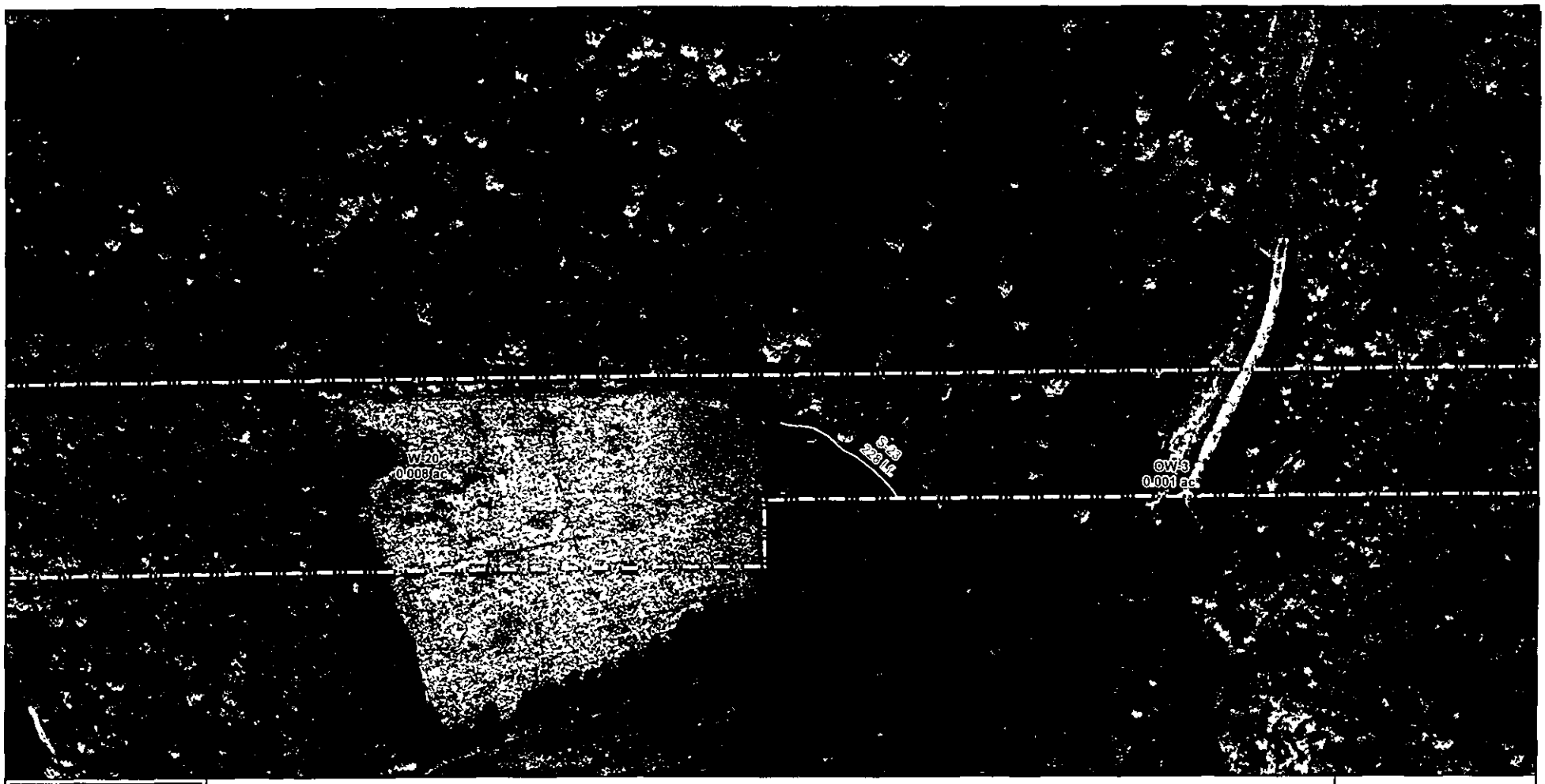
0 30 60 120 Meters

5.11

EnviroScience
Excellence In Any Environment

Basemap courtesy of Esri.

Date: 12/14/20... Path: P:\10_Projects\TTE\eTrack\470MR7480_Wellsville_Delineation\GIS_UPDATED_12072015\Maps_Site I...



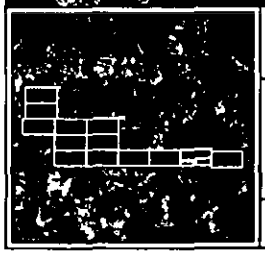


Figure 5.12 Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities.

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt. Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt Route
- Switchyard
- Alternate Route
- Preferred Route

0 130 260 520 Feet

0 30 60 120 Meters

5.12

EnviroScience
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Date 12/14/20.. Path P:\10_Projects\TITerraTech\47GNR\7480_Wellsville_Delineation\GIS_UPDATED_12072019\Mxd_Site n

Basemap courtesy of Esri.

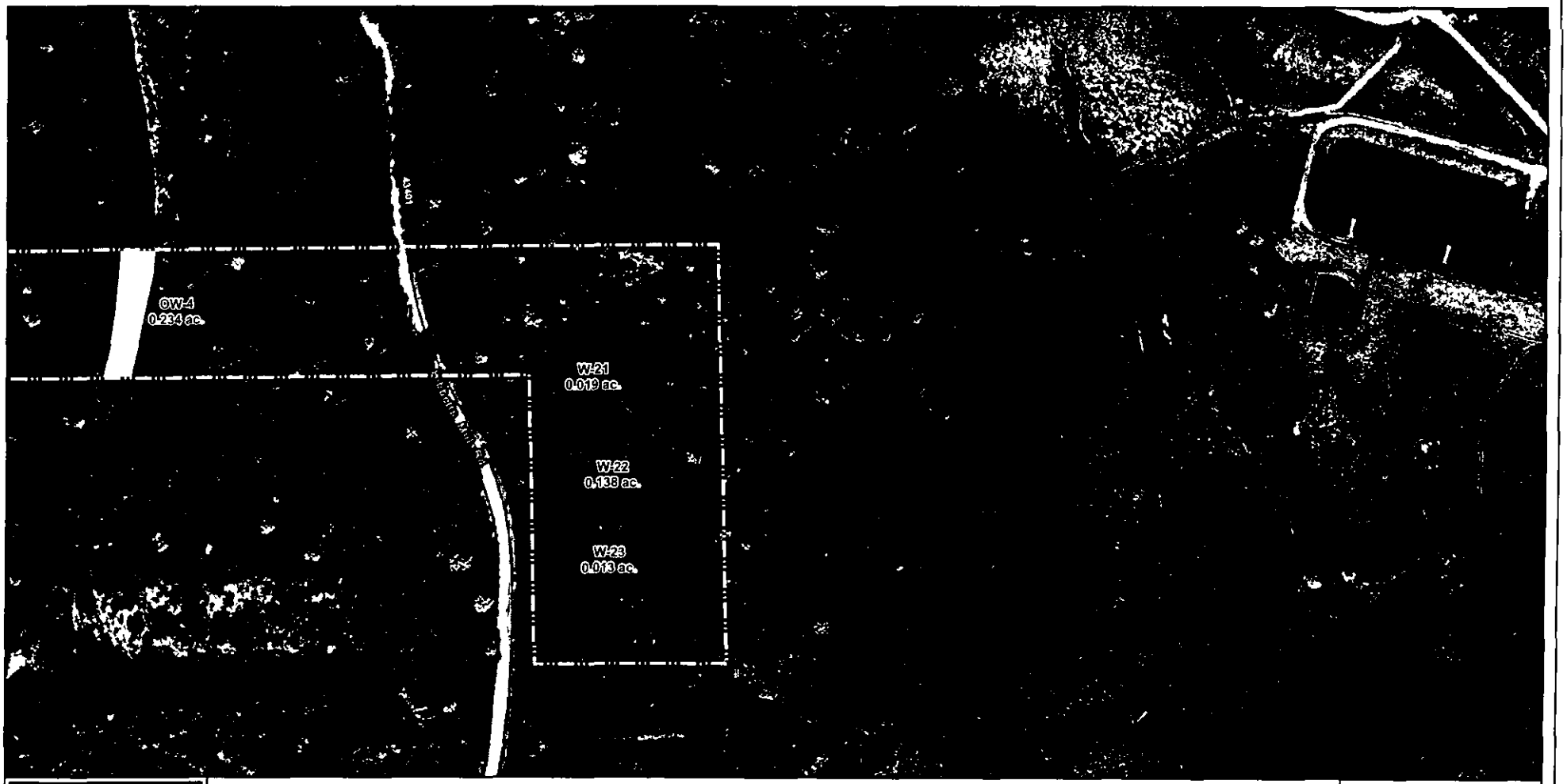

Figure 5 13 Site Map of Wetlands and Other Water Resources
South Field Energy Interconnection Facilities

- Sample Plot
- Culvert
- Stream (Ephemeral)
- Stream (Intermittent)
- Stream (Perennial)
- Stream (Ephemeral) Alt Route
- Stream (Intermittent) Alt Route
- Open Water
- Wetland (PEM)
- Wetland (PFO)
- Wetland (PEM) Alt Route
- Switchyard
- Alternate Route
- Preferred Route

0 150 260 520 Feet

0 30 60 120 Meters

5.13

EnviroScience
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Path P:\10_Projects\TTeam\Tech\70NR\7480_Waterville_Delineation\GIS_UPDATED_12072015\Map5_Site

Date 12/14/20

Basemap courtesy of Esri

Appendix B:

Photographs

Photo 1. Sample Plot 1 representing agricultural field.

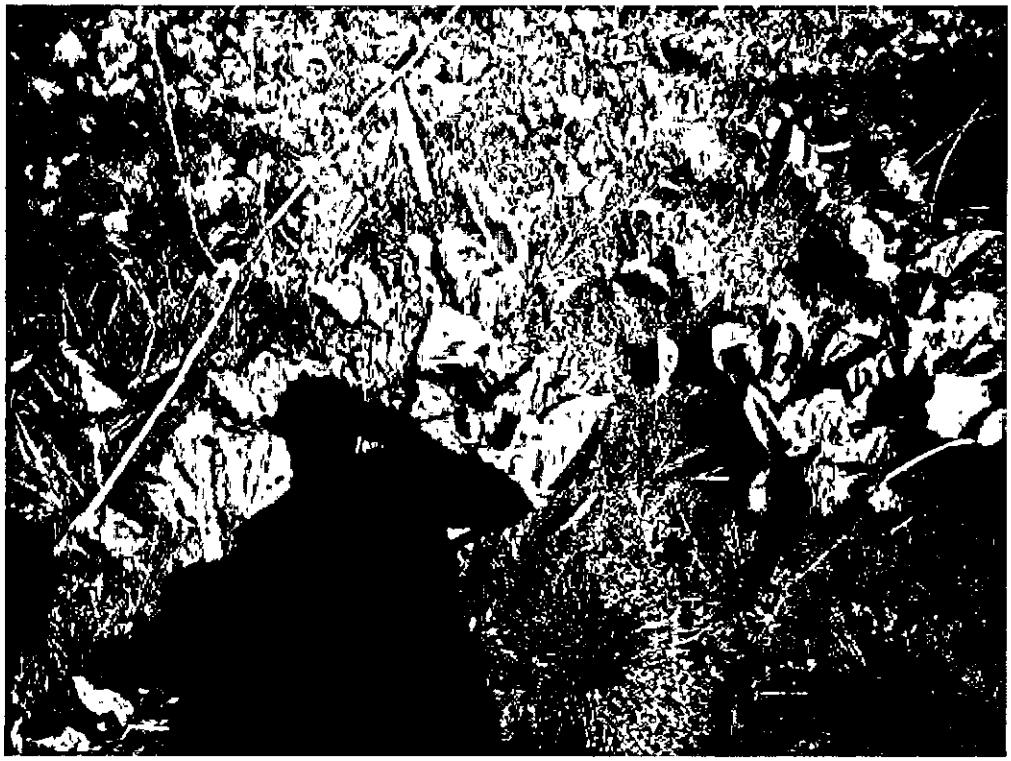

Photo 2. Sample Plot 2 within Wetland W-1.

Photo 3. Sample Plot 3 representing upland forest.

Photo 4. Sample Plot 4, representing a palustrine forested (PFO) vegetated community within Wetland W-1.

Photo 5. Sample Plot 5 representing upland forest.

Photo 6. Sample Plot 6, representing a palustrine emergent vegetative community within Wetland W-2.

Photo 7. Sample Plot 7 representing upland forest.

Photo 8. Sample Plot 8 within Wetland W-6, representing a PEM.

Photo 9. Sample Plot 9 within Wetland W-8.

Photo 10. Sample Plot 10 within Wetland W-7.

Photo 11. Sample Plot 11 representing upland forest.

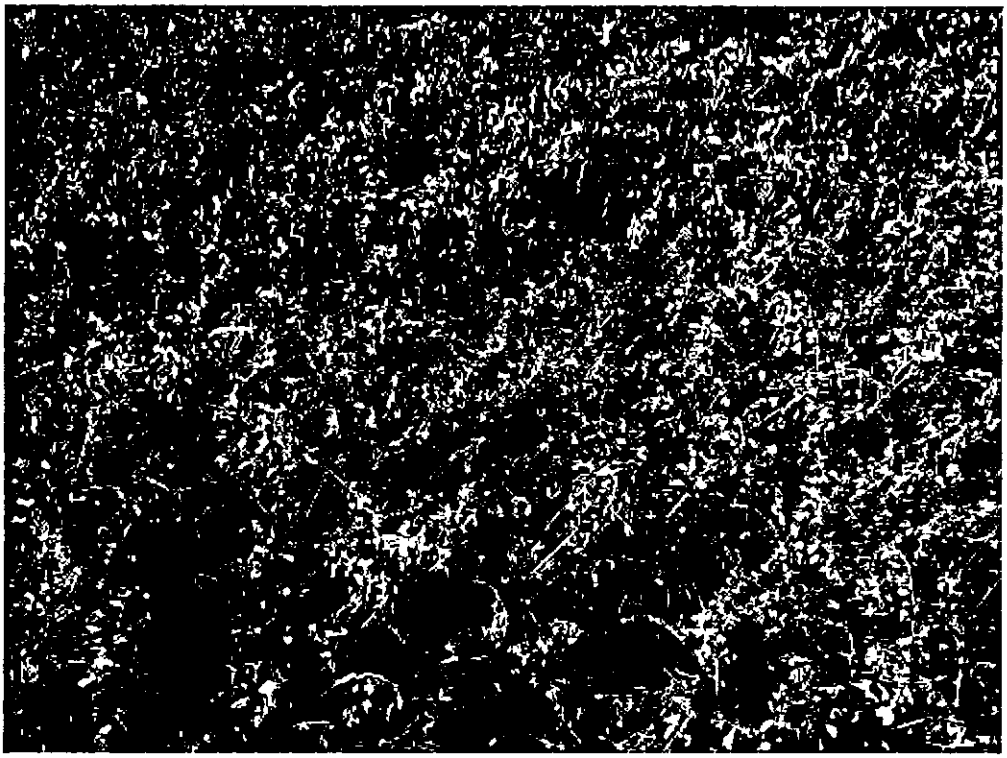

Photo 12. Sample Plot 12 representing agricultural field dominated by alfalfa (*Medicago sativa*).

Photo 13. Sample Plot 13 within Wetland W-9.

Photo 14. Sample Plot 14 representing an upland forest.

Photo 15. Sample Plot 15 representing upland forest.

Photo 16. Sample Plot 16 within Wetland W-11.

Photo 17. Sample Plot 17 within Wetland W-12.

Photo 18. Sample Plot 18 representing a forest.

Photo 19. Sample Plot 19 within Wetland W-13.

Photo 20. Sample Plot 20 representing an upland scrub-shrub community.

Photo 21. Sample Plot 21 within Wetland W-15, a PEM.

Photo 22. Sample Plot 22 within Wetland W-15.

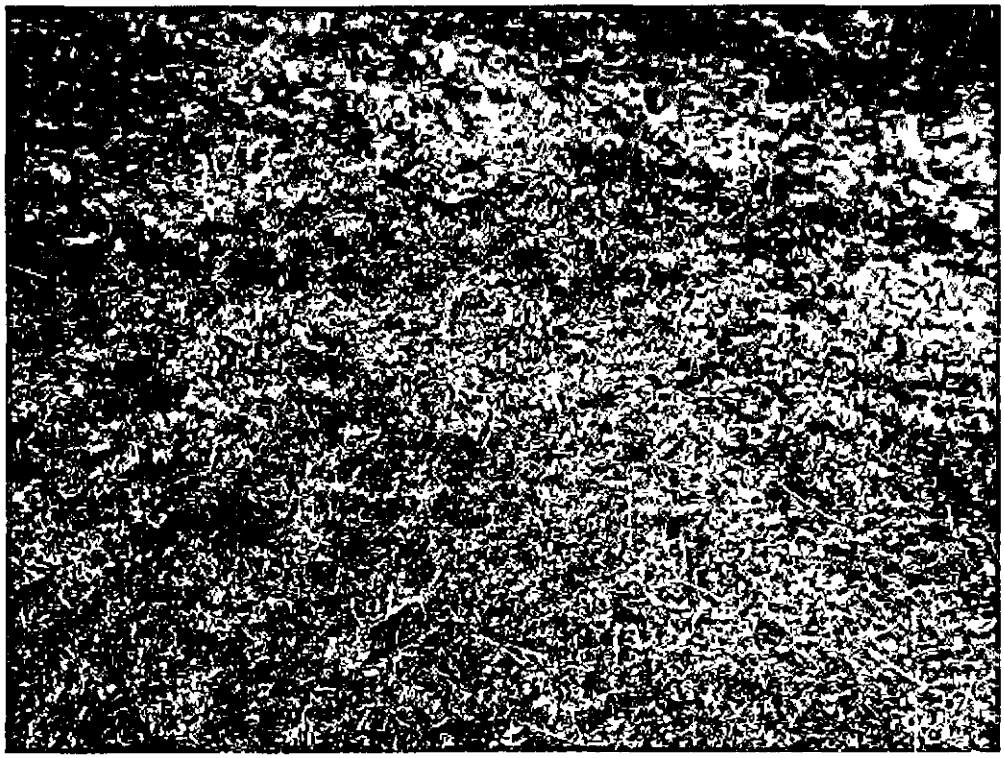

Photo 23. Sample Plot 23 representing a maintained lawn.

Photo 24. Sample Plot 24 within Wetland W-17.

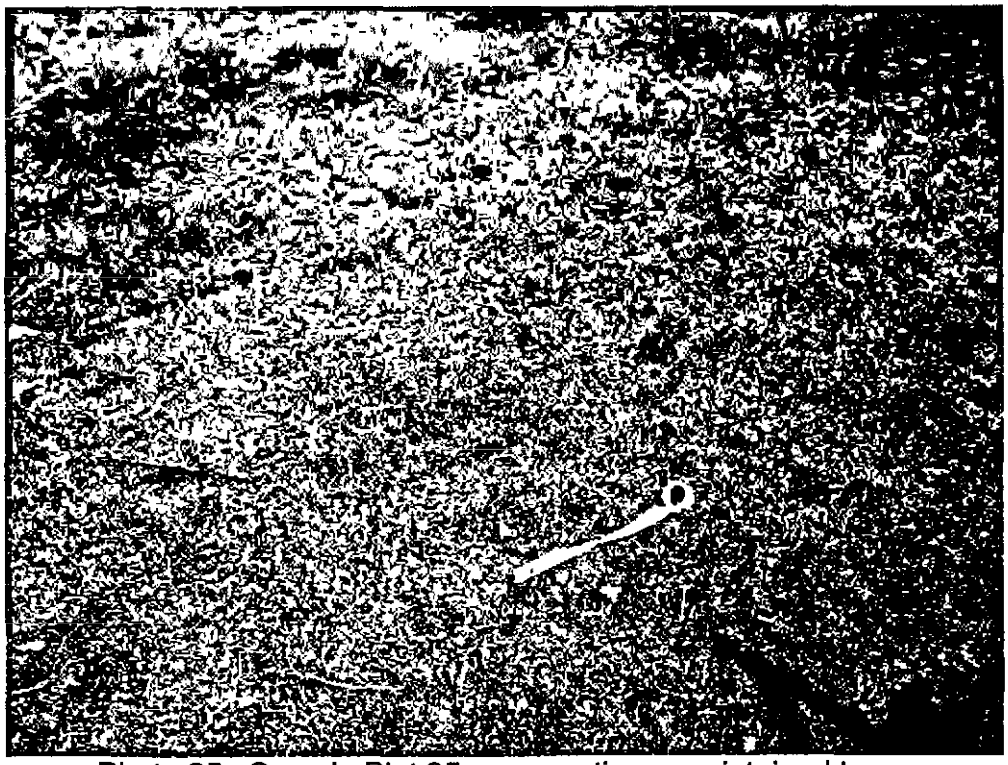

Photo 25. Sample Plot 25 representing a maintained lawn.

Photo 26. Sample Plot 26 representing an open field community.

Photo 27. Sample Plot 27 within Wetland W-18, a PEM.

Photo 28. Sample Plot 28 within Wetland W-19.

Photo 29. Sample Plot 29 representing an old field.

Photo 30. Sample Plot 30 representing an open field.

Photo 31. Sample Plot 31 within Wetland W-20.

Photo 32. Sample Plot 32 representing an upland forest.

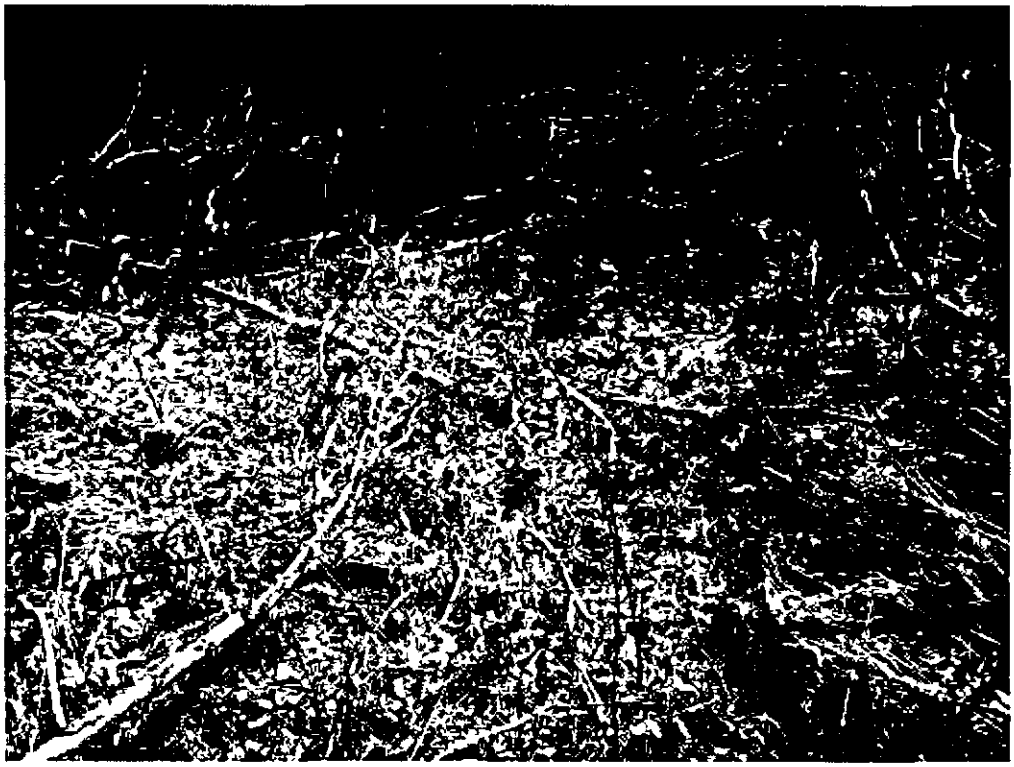

Photo 33. Sample Plot 33 within Wetland W-21.

Photo 34. Sample Plot 34 representing a scrub-shrub community.

Photo 35. Sample Plot 35 within Wetland W-22.

Photo 36. Sample Plot 36 within Wetland W-23.

Photo 37. Wetland W-1 (PEM) facing north.

Photo 38. Wetland W-1 (PFO) facing north.

Photo 39. Wetland W-2 facing east.

Photo 40. Wetland W-3 facing north.

Photo 41. Wetland W-4 facing south.

Photo 42. Wetland W-5 facing south.

Photo 43. Wetland W-6 facing south.

Photo 44. Wetland W-7 facing west.

Photo 45. Wetland W-8 facing northeast.

Photo 46. Wetland W-9 facing east.

Photo 47. Wetland W-10 facing west.

Photo 48. Wetland W-11 facing southwest.

Photo 49. Wetland W-12 facing northwest.

Photo 50. Wetland W-13 facing north.

Photo 51. Wetland W-14 facing east.

Photo 52. Wetland W-15 facing east.

Photo 53. Wetland W-16 facing east.

Photo 54. Wetland W-17 facing north.

Photo 55. Wetland W-18 facing southwest.

Photo 56. Wetland W-19 facing south.

Photo 57. Wetland W-20 facing northeast.

Photo 58. Wetland W-21 facing west.

Photo 59. Wetland W-22 facing east.

Photo 60. Wetland W-23 facing east.

Photo 61. Alder Lick Run facing north upstream

Photo 62. Bailey Run facing south downstream.

Photo 63. Stream S-1 facing west upstream.

Photo 64. Stream S-2 facing north upstream.

Photo 65. Stream S-3 facing south downstream.

Photo 66. Stream S-4 facing south downstream.

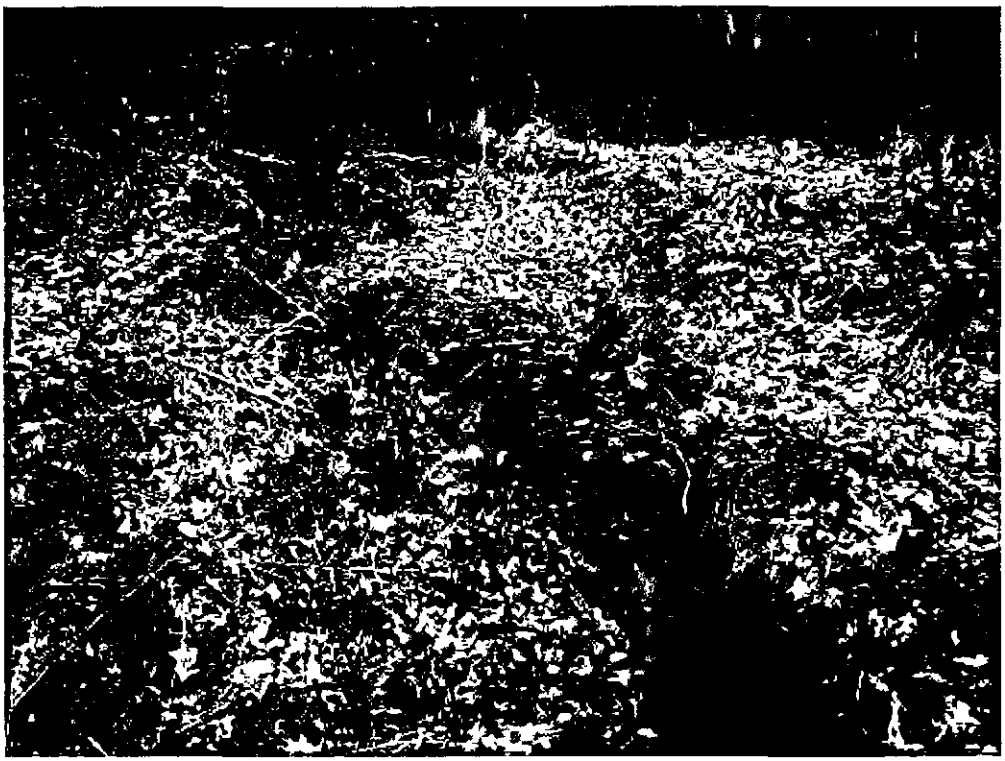

Photo 67. Stream S-5 facing north upstream.

Photo 68. Stream S-6 facing north upstream.

Photo 69. Stream S-7 facing west downstream.

Photo 70. Stream S-8 facing west downstream.

Photo 71. Stream S-9 facing east upstream.

Photo 72. Stream S-10 facing south downstream.

Photo 73. Stream S-11 facing southwest downstream.

Photo 74. Stream S-12 facing north upstream.

Photo 75. Stream S-13 facing west upstream.

Photo 76. Stream S-14 facing west upstream.

Photo 77. Stream S-15 facing south upstream.

Photo 78. Stream S-16 facing southwest upstream.

Photo 79. Stream S-17 facing west upstream.

Photo 80. Stream S-18 facing west upstream.

Photo 81. Stream S-19 facing west upstream.

Photo 82. Stream S-20 facing southwest upstream.

Photo 83. Stream S-21 facing northeast upstream.

Photo 84. Stream S-22 facing northeast upstream.

Photo 85. Stream S-23 facing northwest upstream.

Photo 86. Open Water OW-1 facing northeast.

Photo 87. Open Water OW-2 facing south.

Photo 88. Open Water OW-3 facing west.

Photo 89. *Open Water OW-4 facing northwest.*

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: South Field Energy City/County: Madison Twp./Columbiana Sampling Date: 4/29/15
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-1
Investigator(s): Laura Sayre Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat: 40.651236 Long: -80.734522 Datum: WGS 84
Soil Map Unit Name: BkE NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes ____ No ____
Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: Agricultural

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Field Observations
Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____
Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Sampling Point: SP-1

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	= Total Cover		
Herb Stratum (Plot size 5')			
1. Zea mays	70	Y	UPL
2. Barbarea vulgaris	5	N	FACU
3. Taraxacum officinale	5	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		

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

Dominance Test worksheet.
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet.

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species 10	x 4 = 40
UPL species 70	x 5 = 350
Column Totals: 80 (A)	390 (B)

Prevalence Index = B/A = 4.8

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR5/3	100					LC	
4-12	10YR5/3	80	10YR5/8	30	C	M	LC	

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

Hydric Soil Indicators

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ 2 cm Muck (A10) (LRR N)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7)
- __ Polyvalue Below Surface (S8) (MLRA 147, 148)
- __ Thin Dark Surface (S9) (MLRA 147, 148)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- __ Umbric Surface (F13) (MLRA 136, 122)
- __ Piedmont Floodplain Soils (F19) (MLRA 148)

Indicators for Problematic Hydric Soils[3]

- __ 2 cm Muck (A10) (MLRA 147)
- __ Coast Prairie Redox (A16) (MLRA 147, 148)
- __ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if observed).

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers — Eastern Mountains and Piedmont – Interim Version

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Madison Twp, Columbiana Co Sampling Date: April 29, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-2

Investigator(s): B Sisby, E Kennedy Section, Township, Range: S31, T10N, R2W

Landform (hillslope, terrace, etc.): slope (seep) Local Relief (concave, convex, none): none Slope (%): _____

Subregion (LRR or MLRA): LRR N Lat: 40.649679 Long: -80.733688 Datum: WGS84

Soil Map Unit Name: BkE - Berks channery silt loam, 25 to 40 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No _____	Is the Sampled Area within a Wetland? Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	W-1

Remarks:

PEM. Original name BSday1 SP8

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes _____	No _____	Depth (inches): _____	
Water Table Present?	Yes _____	No _____	Depth (inches): _____	Wetland Hydrology Present?
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 2	Yes X No _____

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

Remarks:

US Army Corps of Engineers — Eastern Mountain and Piedmont - Version 2.0

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

Sampling Point: 2

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Sapling Stratum: (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum: (Plot Size: 15')			
1 *Rosa multiflora*	15	Y	FACU
2			
3			
4			
5			
6			
7			
	15	= Total Cover	
Herb Stratum: (Plot size: 5')			
1 *Symplocarpus foetidus*	35	Y	OBL
2 *Impatiens capensis*	35	Y	FACW
3 *Phalaris arundinacea*	20	N	FACW
4 *Poaceae sp*	20	N	NI
5 *Carex bromoides*	15	N	FACW
6 *Acorus calamus*	10	N	OBL
7			
8			
9			
10			
11			
12			
	135	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet.

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0 x 1 =	0
FACW species	0 x 2 =	0
FAC species	0 x 3 =	0
FACU species	0 x 4 =	0
UPL species	0 x 5 =	0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ___

Remarks (include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/1	90	7.5YR 4/6	10	C	M/PL	clayloam	
3-8	10YR 5/1	90	7.5YR 4/6	10	C	M/PL	clayloam	
8-11	10YR 5/2	70	7.5YR 4/6	25	C	M/PL	clayloam	
			7.5YR 5/8	5	C	M/PL	clayloam	
11-12	10YR 6/1	85	7.5YR 5/8	15	C	M/PL	clayloam	

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

Hydric Soil Indicators.

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp / Columbiana OH Sampling Date: 5/4/15

Applicant/Owner: TetraTech State: OH Sampling Point: 3

Investigator(s): Laura Sayre Section, Township, Range: S31, T10N, R2W

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): LRR N 124 Lat: 40.699509 Long: -80.734186 Datum: WGS84

Soil Map Unit Name: Bke-Berks Channery silt loam, 25-35 percent slopes NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present?	Yes _____ No X	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Forest

1S - SP 9

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Sampling Point: _____

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	40	Y	FACU
2. Prunus serotina	20	Y	FACU
3. Carya ovata	10	N	FACU
4.			
5.			
6.			
7.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15')			
1. Quercus bicolor	5	Y	FACW
2. Fraxinus americana	3	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	8 = Total Cover		
50% of total cover: 4	20% of total cover: 2		
Herb Stratum (Plot size: 5')			
1. Impatiens capensis	30	Y	FACW
2. Podophyllum peltatum	15	Y	FACU
3. Alliaria petiolata	10	N	FACU
4. Symplocarpus foetidus	3	N	OBL
5. Taraxacum officinale	2	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet.

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 3	x 1 = 3
FACW species 30	x 2 = 76
FAC species 0	x 3 = 0
FACU species 97	x 4 = 388
UPL species 0	x 5 = 0
Column Totals: 139 (A)	467 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

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

SOIL

Sampling Point 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/3	100					LC	
8-12	10YR5/3	80	10YR5/4	20	C	M	LC	

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

Hydric Soil Indicators

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed).

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Madison Twp, Columbiana Co Sampling Date: April 29, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-4

Investigator(s): B Staby, E Kennedy Section, Township, Range: Madison Twp

Landform (hillslope, terrace, etc.): slope (seep) Local Relief (concave, convex, none): none Slope (%): _____

Subregion (LRR or MLRA): LRR N Lat: 40.649038 Long: -80.733635 Datum: NAD83

Soil Map Unit Name: CoC NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	W-1

Remarks.

PFO. Original name BSday1 SP9

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes ____	No ____	Depth (inches): ____	
Water Table Present?	Yes ____	No ____	Depth (inches): ____	Wetland Hydrology Present? Yes X No ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections) if available.

Remarks:

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

Sampling Point: 4

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1 Acer rubrum	40	Y	FAC
2 Fraxinus pennsylvanica	20	Y	FACW
3 Ulmus americana	15	N	FACW
4 Quercus alba	15	N	FACU
5			
6			
7			
	90	= Total Cover	

Sapling Stratum: (Plot Size: 15)			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Shrub Stratum: (Plot Size: 15)			
1 Rosa multiflora	20	Y	FACU
2 Crataegus sp.	5	N	NI
3			
4			
5			
6			
7			
	25	= Total Cover	

Herb Stratum: (Plot size: 5)			
1 Carex bromoides	30	Y	FACW
2 moss sp.	20	Y	NI
3 Viola sororia	20	Y	FAC
4 Claytonia virginica	10	N	FAC
5 Asteraceae sp.	3	N	NI
6 Persicaria maculosa	2	N	FACW
7 Geranium maculatum	2	N	FACU
8			
9			
10			
11			
12			
	87	= Total Cover	

Woody Vine Stratum: (Plot size: 15)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	67	x 2 =	134
FAC species	70	x 3 =	210
FACU species	37	x 4 =	148
UPL species	0	x 5 =	0
Column Totals:	174 (A)		492 (B)

Prevalence Index = B/A = 2.827586207

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ___

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

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/2	95	2.5YR 4/6	5	C	M/PL	clayloam	
4-12	10YR 4/1	30	10YR 5/8	40	C	M/PL	clayloam	
	10YR 5/1	30					clayloam	

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

[2]Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp; Columbiana Co. Sampling Date: 24 NOV 2015
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-5
Investigator(s): Ann Gilmore, Mary Gilmore Section, Township, Range: S31, T10N, R2W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none) none Slope (%):
Subregion (LRR or MLRA): LRR N 124 Lat: 40.647778 Long: -80.733289 Datum: WGS 84
Soil Map Unit Name: BkE-Berks Chagrin silt loam, 25-40% slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland Forest.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Field Observations:
Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____
Wetland Hydrology Present? Yes ____ No X

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

Remarks:
No hydrology observed

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

Sampling Point: SP-5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	30	Y	FACU
2. Acer rubrum	25	Y	FAC
3. Quercus rubra	20	Y	FACU
4. Gleditsia triacanthos	20	Y	FAC
5.			
6.			
7.			
	95 = Total Cover		
50% of total cover: 48	20% of total cover: 19		

Sapling/Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	20	Y	FACU
2. Quercus rubra	12	Y	FACU
3. Acer rubrum	12	Y	FAC
4. Prunus serotina	6	N	FACU
5. Carya ovata	5	N	FACU
6. Rosa multiflora	5	N	FACU
7.			
8.			
9.			
	62 = Total Cover		
50% of total cover: 31	20% of total cover: 12		

Herb Stratum (Plot size: 5')			
1. Dicentra sp.	25	Y	UPL
2. Alliaria petiolata	20	Y	FACU
3. Dryopteris carthusiana	20	Y	FAC
4. Symphyotrichum cordifolium	5	N	UPL
5. Lamia purpurea	5	N	UPL
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
50% of total cover: 38	20% of total cover: 15		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 10 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

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SOIL

Sampling Point: SP-5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 2/2	100					loam	
2-14"	2.5Y 5/4	100					loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Madison Twp , Columbiana Co. Sampling Date: April 29, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP 6

Investigator(s): E Kennedy Section, Township, Range: S32, T10N, R2W

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

Subregion (LRR or MLRA): LRR N Lat: 40.646828 Long: -80.726964 Datum: WGS84

Soil Map Unit Name: BkE Berks channery silt loam, 25 to 40 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		W-03
Wetland Hydrology Present?	Yes X No ____		

Remarks:

pem stream fringe Original name ewSP13.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 4

Wetland Hydrology Present? Yes X No ____

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

Remarks:

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

Sampling Point: 6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Sapling Stratum: (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Shrub Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Herb Stratum: (Plot size: 5')			
1 *Impatiens capensis*	30	Y	FACW
2 *Glyceria striata*	25	Y	OBL
3 *Ranunculus sp*	20	Y	ND
4 *Symphyotrichum sp.*	5	N	ND
5 *Carastium sp*	2	N	ND
6			
7			
8			
9			
10.			
11			
12.			
	82	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

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

Percent of Dominant Species That Are OBL, FACW or FAC: #DIV/0! (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- X 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ___

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

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 4/1	95	5YR 4/6	5	C	M	clay/loam	
4-12	7.5YR 5/1	80	10YR6/8	20	C	M/PL	clay/loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Madison Twp , Columbiana Co. Sampling Date: April 28, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-7

Investigator(s): E Kennedy Section, Township, Range: S32, T10N, R2W

Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): none Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 40.848766 Long: -80.72688 Datum: WGS84

Soil Map Unit Name: BkE - Berks channery silt loam, 25 to 40 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland?	Yes ____	No X
Hydric Soil Present?	Yes ____	No X			
Wetland Hydrology Present?	Yes ____	No X			

Remarks:

upland forest. Original name swap14.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes ____	No X	Depth (inches): ____	Wetland Hydrology Present?	
Water Table Present?	Yes ____	No X	Depth (inches): ____	Yes ____	No X
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____		

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

Remarks:

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

Sampling Point: 7

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1 Prunus serotina	30	Y	FACU
2 Quercus rubra	20	Y	FACU
3. Quercus alba	10	N	FACU
4			
5			
6			
7			
	60	= Total Cover	
Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum (Plot Size: 15')			
1 Prunus serotina	30	Y	FACU
2 Quercus rubra	5	N	FACU
3			
4			
5			
6			
7			
	35	= Total Cover	
Herb Stratum (Plot size: 5')			
1 Viola sororia	15	Y	FACU
2 Nabalus altissima	15	Y	FACU
3 Alliaria petiolata	5	N	FACU
4 Polystichum acrostichoides	5	N	FACU
5 Claytonia virginica	5	N	FAC
6 Rubus sp	1	N	ND
7			
8			
9			
10			
11			
12.			
	46	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	145	x 4 =	580
UPL species	0	x 5 =	0
Column Totals	150 (A)		595 (B)

Prevalence Index = B/A = 3.966666667

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ____

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

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					loam	
3-9	10YR5/4	100					loam	
9+	refusal							

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: gravel

Depth (inches): 9"

Hydric Soil Present? Yes ____ No X

Remarks:

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WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Ekron Interconnection Facility City/County: Madison Twp/Columbiana Co. Sampling Date: 24 Nov 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-8

Investigator(s): Ann Gilmore, Mary Gilmore Section, Township, Range: ____

Landform (hillslope, terrace, etc.): riverine/depression Local relief (concave, convex, none): concave Slope (%): ____

Subregion (LRR or MLRA): LRR N 126 Lat: 40.647582 Long: -80.726554 Datum: WGS 84

Soil Map Unit Name: CoC - Coshocton silt loam, 6-15% slopes NWI classification: ____

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

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

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

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

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____ Wetland W-6

Remarks: PEM along S-4.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 13"

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 9"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

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

Sampling Point SP-8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5')			
1. Poa palustris	40	Y	FACW
2. Impatiens capensis	15	Y	FACW
3. Symplocarpus foetidus	15	Y	OBL
4. Carex palustre	10	N	OBL
5. Urtica dioica	10	N	FACW
6. Sambucus nigra	5	N	FAC
7. Ludwigia sp!	5	N	OBL
8. Geum virginianum	2	N	FAC
9.			
10.			
11.			
	102 = Total Cover		
50% of total cover: 51	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- 1 Rapid Test for Hydrophytic Vegetation
- 2 Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point SP-8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/2	60	10YR 4/2	35	RM	M	silt loam	
			10YR 4/6	5	C	M		
4-9"	10YR 3/2	80	7.5YR 4/6	10	C	PL/M	silt loam	
9-20"	2.5Y 4/2	80	7.5YR 4/6	20	C	PL	sandy clay loam	

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

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed)

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp/Columbiana Co. Sampling Date: 24 NOV 2015
Applicant/Owner: Terra Tech State: OH Sampling Point: SP-9
Investigator(s): Ann Gilmore, Mary Gilmore Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%):
Subregion (LRR or MLRA): LRR N 72b Lat: 40.646043 Long: -80.726521 Datum: WGS 84
Soil Map Unit Name: BkE-Berks Channery Silt loam, 25 to 40% slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes Y No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes Y No
Wetland W-8

Remarks.
Fem along mouth of S-7

HYDROLOGY

Wetland Hydrology Indicators.

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

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

Field Observations.
Surface Water Present? Yes ____ No X Depth (inches) ____
Water Table Present? Yes X No ____ Depth (inches) 11"
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 4"
Wetland Hydrology Present? Yes Y No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available.

Remarks.

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

Sampling Point SP-9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum (Plot size: 5')			
1. Poa palustris	30	Y	FAC W
2. Symphyotrichum prenanthoides	20	Y	FAC
3. Geum virginianum	10	Y	FAC
4. Galium palustre	5	N	OBL
5. Agrimonia sp	5	N	NI
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

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SOIL

Sampling Point: SP-9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type	Loc[2]	Texture	Remarks
0-2"	10YR 3/2	100					clay loam	
2-9"	5Y 3/1	95	7.5Y 3/3	5	D	M	clay	
9-13"	2.5Y 5/2	90	10YR 5/8	10	C	M	sandy gravelly (alluvium)	

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

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ 2 cm Muck (A10) (LRR N)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7)
- __ Polyvalue Below Surface (S8) (MLRA 147, 148)
- __ Thin Dark Surface (S9) (MLRA 147, 148)
- X Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- __ Umbric Surface (F13) (MLRA 136, 122)
- __ Piedmont Floodplain Soils (F19) (MLRA 148)
- __ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) (MLRA 147)
- __ Coast Prairie Redox (A16) (MLRA 147, 148)
- __ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp | Columbiana Sampling Date: 24 Nov 2015

Applicant/Owner: Itra Tech State: OH Sampling Point: SP-10

Investigator(s): Ann Gilmore, Mary Gilmore Section, Township, Range: _____

Landform (hillslope, terrace etc.): depression Local relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR or MLRA): LRR N 121e Lat: 40.645928 Long: -80.76807 Datum: WGS 84

Soil Map Unit Name: BXE- Bens channery silt loam, 25-40% slopes NWI classification: N/A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	Wetland W-7

Remarks:

Pem along S-5.

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present?	Yes ____	No X	Depth (inches) ____
Water Table Present?	Yes ____	No X	Depth (inches) ____
Saturation Present? (Includes capillary fringe)	Yes X	No ____	Depth (inches) 14"

Wetland Hydrology Present? Yes X No ____

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

Remarks.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: SP-10

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 5')			
1. Poa palustris	50	Y	FACW
2. Impatiens capensis	25	Y	FACW
3. Scirpus cyperinus	5	N	OBL
4. Carex sp.	2	N	NI
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	82 = Total Cover		
50% of total cover: 41	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- __ 2 - Dominance Test is >50%
- __ 3 - Prevalence Index is ≤3.0[1]
- __ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes Y No ____

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SOIL Sampling Point: SP-10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 4/2	100					silty clay loam	
2-10"	2.5Y 4/1	90	7.5YR 5/6	10	C	M	"	
10-16"	2.5Y 4/2	90	7.5YR 4/6	10	C	PL	"	

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

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ 2 cm Muck (A10) (LRR N)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7)
- __ Polyvalue Below Surface (S8) (MLRA 147, 148)
- __ Thin Dark Surface (S9) (MLRA 147, 148)
- I Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- __ Umbric Surface (F13) (MLRA 136, 122)
- __ Piedmont Floodplain Soils (F19) (MLRA 148)
- __ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) (MLRA 147)
- __ Coast Prairie Redox (A16) (MLRA 147, 148)
- __ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes X No ____

Remarks.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp | Columbiana Co Sampling Date: 24 NOV 2015
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-11
Investigator(s): Ann Gilmore, Mary Gilmore Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%):
Subregion (LRR or MLRA): LRR N 126 Lat: 40.645872 Long: -80.776608 Datum: WGS 84
Soil Map Unit Name: BkD – Berks Chagrin Gilt loam, 15-25% slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes Y No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes Y No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No Y
Hydric Soil Present? Yes ____ No Y
Wetland Hydrology Present? Yes ____ No Y
Is the Sampled Area within a Wetland? Yes ____ No Y

Remarks.
Upland Forest

HYDROLOGY

Wetland Hydrology Indicators

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

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

Field Observations.
Surface Water Present? Yes ____ No Y Depth (inches) ____
Water Table Present? Yes ____ No Y Depth (inches) ____
Saturation Present? (includes capillary fringe) Yes ____ No Y Depth (inches) ____
Wetland Hydrology Present? Yes ____ No X

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

Remarks.
No hydrology observed.

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

Sampling Point SP-11

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	20	Y	FACU
2. Quercus rubra	20	Y	FACU
3. Ostrya virginiana	20	Y	FACU
4. Quercus alba	15	N	FACU
5. Acer rubrum	10	N	FAC
6.			
7.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 19		

Sapling/Shrub Stratum (Plot size: 15')			
1. Carpinus caroliniana	30	Y	FAC
2. Acer rubrum	5	N	FAC
3. Rubus allegheniensis	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	37 = Total Cover		
50% of total cover: 19	20% of total cover: 8		

Herb Stratum (Plot size: 5')			
1. Carex pennsylvanica	40	Y	UPL
2. Polystichum acrostichoides	10	N	FACU
3. Carex laxiculmis	5	N	UPL
4. Dryopteris carthusiana	5	N	FAC
5. Mitella repens	2	N	FACU
6. Galium sp.	2	N	NL
7.			
8.			
9.			
10.			
11.			
	64 = Total Cover		
50% of total cover: 32	20% of total cover: 14		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet.
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:	
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	50	x 3 = 150
FACU species	89	x 4 = 356
UPL species	45	x 5 = 225
Column Totals:	184 (A)	731 (B)

Prevalence Index = B/A = 3.97

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: SP-11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3"	10YR 4/3	100					Silt loam	
3-11"	10Y 6/4	100					Silt loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)
Type: ROOTS
Depth (inches): 11"

Hydric Soil Present? Yes ____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp/Columbiana Co. Sampling Date: 24 NOV 2015
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-12
Investigator(s): Matt Gilmore, Mary Gilmore Section, Township, Range:
Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): Convex Slope (%):
Subregion (LRR or MLRA): LRR N 126 Lat: 40.642368 Long: -80.724847 Datum: WGS 84
Soil Map Unit Name: BKE-Berks Channery silt loam, 25 to 40% slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Agricultural field.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply):

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

Secondary Indicators (minimum of two required):

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

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:
No hydrology observed

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

Sampling Point: SP-12

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5')			
1. Medicago sativa	75	Y	UPL
2. Lamium purpureum	10	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 = Total Cover		
50% of total cover: 43	20% of total cover: 18		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet.

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 0	x 3 =	0
FACU species 0	x 4 =	0
UPL species 85	x 5 =	425
Column Totals: 85 (A)		425 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: SP-12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10YR 3/3	80	10YR 6/8	20			Silt loam	

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

Hydric Soil Indicators.

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3].

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Madison Twp , Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-13

Investigator(s): Brian Sieby Section, Township, Range: S32, T10N, R2W

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

Subregion (LRR or MLRA): LRR N Lat: 40.648652 Long: -80.720492 Datum: WGS84

Soil Map Unit Name: BkD - Berks channery silt loam 15 to 25 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	W-9

Remarks:

PEM. Original name BSday2 SP8

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___	
Water Table Present?	Yes ___	No X	Depth (inches): ___	Wetland Hydrology Present? Yes X No
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 6	

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

Remarks:

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

Sampling Point: 13

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1 *Impatiens capensis*	70	Y	FACW
2 *Floerkea proserpinacoides*	30	Y	FAC
3 *Viola sp*	5	N	NI
4 *Symplocarpus foetidus*	3	N	OBL
5 *Alliaria petiolata*	2	N	FACU
6 *Trillium sp.*	1	N	NI
7 *unknown monocot*	1	N	NI
8			
9			
10			
11			
12			
	112	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW or FAC: 100.00% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No

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

unknown monocot lily?

SOIL

Sampling Point: 13

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	95	7.5YR 4/6	5	C	M/PL	loam	
2-10	2.5Y 5/2	90	5YR 4/6	10	C	M/PL	loam	

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

[2]Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators.

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: tree roots

Depth (inches): 10

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Madison Twp, Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-14

Investigator(s): B Staby Section, Township, Range: S32, T10N, R2W

Landform (hillslope, terrace, etc.): hill slope Local Relief (concave, convex, none): convex Slope (%): ___

Subregion (LRR or MLRA): LRR N Lat: 40.648796 Long: -80.720421 Datum: WGS84

Soil Map Unit Name: BkD - Berks chemery silt loam, 15 to 25 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present? Yes ___ No X

Hydric Soil Present? Yes ___ No X

Wetland Hydrology Present? Yes ___ No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks:

Forest. Original name BSday2 SP9

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

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

Sampling Point: 14

	Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1	*Pinus strobus*	70	Y	FACU
2	*Acer rubrum*	15	N	FAC
3	*Prunus serotina*	10	N	FACU
4				
5				
6				
7				
		95	= Total Cover	

	Sapling Stratum (Plot Size: 15')			
1				
2				
3				
4				
5				
6				
7				
		0	= Total Cover	

	Shrub Stratum (Plot Size: 15')			
1				
2				
3				
4				
5				
6				
7				
		0	= Total Cover	

	Herb Stratum (Plot size: 5')			
1	*Floerkea proserpinacoides*	15	Y	FAC
2	*Stellaria sp.*	5	N	NI
3	*Rubus sp.*	3	N	NI
4	*Allaria petiolata*	3	N	FACU
5	*Rosa multiflora*	3	N	FACU
6	*Impatiens capensis*	3	N	FACW
7	*Claytonia virginica*	2	N	FAC
8	*Ulmus americana*	2	N	FACW
9	*Geum sp.*	2	N	NI
10.				
11				
12.				
		38	= Total Cover	

	Woody Vine Stratum (Plot size: 30')			
1				
2				
3				
4				
5				
		0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	32	x 3 =	96
FACU species	86	x 4 =	344
UPL species	0	x 5 =	0
Column Totals:	123 (A)		450 (B)

Prevalence Index = B/A = 3.658536585

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[4]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1	7.5YR 2.5/2	100					loam	
1-4	10YR 3/3	100					loam	
4-8	2.5Y 4/3	100					loam	

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

[2]Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10) (LRR N)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (MLRA 147,148)
___ Thin Dark Surface (S9) (MLRA147, 148)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
___ Umbric Surface (F13) (MLRA 136, 122)
___ Piedmont Floodplain Soils (F19) (MLRA 148)
___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (MLRA 147)
___ Coast Prairie Redox (A16) (MLRA 147, 148)
___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock and tree roots

Depth (inches): 8

Hydric Soil Present? Yes ___ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Madison Twp , Columbiana Co Sampling Date: April 30 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-15

Investigator(s): S Slaby Section, Township, Range: S32, T10N, R2W

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

Subregion (LRR or MLRA): LRR N Lat: 40.84665 Long: -80.719488 Datum: WGS84

Soil Map Unit Name: BkD Berks channery silt loam, 15 to 25 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes	No X	Is the Sampled Area within a Wetland? Yes No X
Wetland Hydrology Present?	Yes	No X	

Remarks:

Forest. Original name BSday2 SP7

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Sampling Point: 15

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1 *Acer rubrum*	70	Y	FAC
2 *Prunus serotina*	10	N	FACU
3 *Pinus strobus*	5	N	FACU
4 *Pinus sylvestris*	5	N	NI
5.			
6			
7			
	90	= Total Cover	
Sapling Stratum: (Plot Size: 15')			
1			
2			
3.			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum: (Plot Size: 15')			
1 *Rosa multiflora*	10	Y	FACU
2 *Fraxinus pennsylvanica*	5	Y	FACW
3			
4			
5			
6			
7			
	15	= Total Cover	
Herb Stratum: (Plot size: 5')			
1 *Claytonia virginica*	15	Y	FAC
2 *Floerkea proserpinacoides*	10	Y	FAC
3 *Impatiens capensis*	5	N	FACW
4 *Ulmus americana*	5	N	FACW
5 *Acer rubrum*	5	N	FAC
6 *Viburnum sp*	5	N	NI
7 *Dichanthelium clandestinum*	2	N	FAC
8			
9			
10			
11			
12.			
	47	= Total Cover	
Woody Vine Stratum: (Plot size 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 80.00% (A/B)

Prevalence Index worksheet.

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No

SOIL

Sampling Point: 15

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5	10YR 2/2	100					loam	
0.5-12	2.5Y 4/3	100					loam	

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

[2]Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

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WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities — City/County: Madison Twp., Columbiana Co — Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech — State: OH — Sampling Point: SP 15

Investigator(s): B Sisby — Section, Township, Range: S32, T10N, R2W

Landform (hillslope, terrace, etc.): slope — Local Relief (concave, convex, none): none — Slope (%): ___

Subregion (LRR or MLRA): LRR N — Lat: 40.648572 — Long: -80.719179 — Datum: WGS84

Soil Map Unit Name: GoC Gilpin-Coshocton silt loams, 6 to 15 percent slopes — NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X	No ___	W-11
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

PFO Original name BSdey2 SP6

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply):

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

Secondary Indicators (minimum of two required):

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

Field Observations.

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___	Wetland Hydrology Present?	
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 9	Yes X	No ___

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

Remarks:

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VEGETATION (Five Strata) - Use scientific names of plants

Sampling Point: 16

	Absolute	Dominant	Indicator
Tree Stratum (Plot size: 30')	% Cover	Species?	Status
1 *Acer rubrum*	40	Y	FAC
2			
3			
4			
5			
6			
7			
	40	= Total Cover	
Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6.			
7			
	0	= Total Cover	
Shrub Stratum (Plot Size: 15')			
1 *Cornus racemosa*	15	Y	FAC
2 *Rosa multiflora*	10	Y	FACU
3 *Fraxinus pennsylvanica*	5	N	FACW
4			
5			
6			
7			
	30	= Total Cover	
Herb Stratum (Plot size: 5')			
1 *Impatiens capensis*	50	Y	FACW
2 *Onoclea sensibilis*	40	Y	FACW
3 *Floerkea proserpinacoides*	20	N	FAC
4 *Glyceria striata*	10	N	OBL
5 *Symphyotrichum sp*	3	N	NI
6 *Alliaria petiolata*	1	N	FACU
7			
8			
9			
10.			
11			
12			
	124	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.00% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ___

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

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SOIL

Sampling Point: 16

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

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					clayloam	
3-9	2.5Y 4/1	95	5YR 3/4	5	C	M/PL	clayloam	
9-14	2.5Y 4/1	90	5YR 4/6	10	C	M/PL	clayloam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: ___

Depth (Inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

US Army Corps of Engineers — Eastern Mountains and Piedmont - Version 2.0

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp/Columbiana Co Sampling Date: 5/4/15
Applicant/Owner: Tetratech State: OH Sampling Point: SP17
Investigator(s): Laura Sayre Section, Township, Range: S32, T10N, R2W
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR or MLRA): LRR N124 Lat: 40.647217 Long: -80.717463 Datum: WGS-84
Soil Map Unit Name: GoC-Gilpin-Cahocton silt loams, 6 to 12 percent slopes NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes X No ____		

Remarks
PEM - W-12

LS-W-3 SP3-1

HYDROLOGY

Wetland Hydrology Indicators

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

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

Field Observations

Surface Water Present?	Yes X	No ____	Depth (inches): 1
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections) if available.

Remarks.

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

Sampling Point 17

Tree Stratum (Plot size 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum (Plot size 5')			
1. Glyceria striata	70	Y	OBL
2. Impatiens capensis	15	N	FACW
3. Symplocarpus foetidus	10	N	OBL
4. Barbarea vulgaris	3	N	FACU
5. Allium asperifolium	2	N	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet.
- Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
- Total Number of Dominant Species Across All Strata: 1 (B)
- Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators.
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ____

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

SOIL

Sampling Point 17

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 5/1	100					LC	
6-12	10YR 5/1	90	10YR 5/6	10	C	M	LC	

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

Hydric Soil Indicators

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southfield Energy Interconnection Facility City/County: Madison Twp/ Columbiana Co Sampling Date: 5/4/15

Applicant/Owner: Tetra Tech State: OH Sampling Point: 18

Investigator(s): Laura Sayre Section, Township, Range: S32, T10N, R2W

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): ____

Subregion (LRR or MLRA): LRR N 124 Lat: 40.647044 Long: -80.717715 Datum: WGS84

Soil Map Unit Name: GoC-Gilpin-Connoquenessing silt loams, 15 percent slopes NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks.

Forest

LS 3-2

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present? Yes ____ No ____ Depth (inches): _____

Water Table Present? Yes ____ No ____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

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

Remarks

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 18

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	25	Y	FACU
2. Quercus palustris	10	Y	FACW
3.			
4.			
5.			
6.			
7.			
	35 = Total Cover		
50% of total cover: 17	20% of total cover: 7		
Sapling/Shrub Stratum (Plot size: 15')			
1. Crataegus sp.	40	Y	NI
2. Rosa multiflora	20	Y	FACU
3. Carya ovata	10	N	FACU
4. Ligustrum vulgare	5	N	FACU
5.			
6.			
7.			
8.			
9.			
	75 = Total Cover		
50% of total cover: 38	20% of total cover: 15		
Herb Stratum (Plot size: 5')			
1. Claytonia virginica	40	Y	FAC
2. Symphyotrichum sp	30	Y	NI
3. Taraxacum officinale	10	N	FACU
4. Impatiens capensis	5	N	FACW
5. Viola septentrionalis	5	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet.

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	40	x 3 =	120
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	130 (A)		450 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: 18

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/3	100					LC	
6-12	10YR6/3	95	10YR7/4	5	C	M	Lc	

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

Hydric Soil Indicators.

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Stratified Layers (A5)
__ 2 cm Muck (A10) (LRR M)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Dark Surface (S7)
__ Polyvalue Below Surface (S8) (MLRA 147, 148)
__ Thin Dark Surface (S9) (MLRA 147, 148)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)
__ Iron Manganese Masses (F12) (LRR N, MLRA 136)
__ Umbric Surface (F13) (MLRA 136, 122)
__ Piedmont Floodplain Soils (F19) (MLRA 148)
__ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3].

__ 2 cm Muck (A10) (MLRA 147)
__ Coast Prairie Redox (A16) (MLRA 147, 148)
__ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
__ Very Shallow Dark Surface (TF12)
__ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp/ Columbiana Co. Sampling Date: 5/4/15
Applicant/Owner: TetraTech State: OH Sampling Point: SP-19
Investigator(s): Laura Sayre Section, Township, Range: S32, T10N, R2W
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): LRR N124 Lat: 40.64386 Long: -80.717068 Datum: WGS84
Soil Map Unit Name: GoC- NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: PEM in W-13.

SP L3-3

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Field Observations:
- Surface Water Present? Yes X No ____ Depth (inches): 1"
- Water Table Present? Yes X No ____ Depth (inches): 0"
- Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants

Sampling Point: 19

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	____ = Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	____ = Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum (Plot size: 5')			
1. Glyceria Striata	40	Y	OBL
2. Acorus calamus	30	Y	OBL
3. Impatiens Capensis	20	Y	FACW
4. Onoclea Sensibilis	5	N	FACW
5. Alisma Subcordatum	3	N	OBL
6. Symplocarpus foetidus	2	N	OBL
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
50% of total cover: ____	20% of total cover: ____		

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

Dominance Test worksheet
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
- X 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ____

SOIL

Sampling Point: 19

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/1	100					LC	
4-12	10YR 4/1	90	10YR 4/4	10	C	M	LC	

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

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp/ Columbiana Co. Sampling Date: 5/4/15

Applicant/Owner: TetraTech State: OH Sampling Point: SP2D

Investigator(s): Laura Sayre, Section, Township, Range: S32, T10N, R2W

Landform (hillslope, terrace etc.): ___ Local relief (concave, convex, none): ___ Slope (%): ___

Subregion (LRR or MLRA): LRR N 124 Lat: 40.6413885 Long: -80.716769 Datum: WGS84

Soil Map Unit Name: CoC-Gilpin-Coshocton silt loams, 8 to 15 % slopes NWI classification: ___

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___	No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:

Scrub/Shrub

LS 3-4

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 20

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	100	Y	FAU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	100 = Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum (Plot size: 5')			
1. Floerkea proserpinacoides	30	Y	FAC
2. Symphoricarpos sp	20	Y	NI
3. Claytonia virginica	10	N	FAU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet:
- Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
- Total Number of Dominant Species Across All Strata: 2 (B)
- Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 0	x 2 = 0
FAC species 30	x 3 = 90
FACU species 110	x 4 = 440
UPL species 0	x 5 = 0
Column Totals: 140 (A)	530 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: 20

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/2	100					LC	
8-15	10YR 5/3	90	10YR 5/4	10	C	M	LC	

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

Hydric Soil Indicators:
- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:
- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

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

Hydric Soil Present? Yes ____ No X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Yellow Creek Twp / Columbiana Co. Sampling Date: 24 NOV 2015
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-21
Investigator(s): Ann Gilmore, Mary Gilmore Section, Township, Range:
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%):
Subregion (LRR or MLRA): LRR N 124 Lat: Long: Datum: NAD 83
Soil Map Unit Name: CsC-Coshocton silt loam, 6 to 15% slopes NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks: PEM

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes X No

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

Remarks:

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

Sampling Point: SP-21

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover: ___	20% of total cover: ___		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover: ___	20% of total cover: ___		
Herb Stratum (Plot size: 5')			
1 Poa palustris	15	Y	FACW
2 Epilobium coloratum	15	Y	FACW
3 Symphyotrichum prenanthoides	15	Y	FACW
4 Symphyotrichum novae-angliae	15	Y	FACW
5 Juncus effusus	10	N	FACW
6 Lonicera virginica	10	N	FACW
7 Persicaria capitata	10	N	OBL
8 Eutrochium maculatum	8	N	FACW
9 Euthamia tenuifolia	8	N	FACW
10 Solidago gigantea	5	N	FACW
11.			
	111 = Total Cover		
50% of total cover: 56	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ___	20% of total cover: ___		

Dominance Test worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: SP-21

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	98	10YR 4/6	2	C	PL	silt loam	
2-12	2.5Y 4/1	90	7.5YR 5/6	10	C	PL/M	silt loam	

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

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ 2 cm Muck (A10) (LRR N)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7)
- __ Polyvalue Below Surface (S8) (MLRA 147, 148)
- __ Thin Dark Surface (S9) (MLRA 147, 148)
- __ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- __ Umbric Surface (F13) (MLRA 136, 122)
- __ Piedmont Floodplain Soils (F19) (MLRA 148)
- __ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- __ 2 cm Muck (A10) (MLRA 147)
- __ Coast Prairie Redox (A16) (MLRA 147, 148)
- __ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Madison Twp / Columbiana Co. Sampling Date: 5/4/15

Applicant/Owner: TetraTech State: OH Sampling Point: SP-22

Investigator(s): Laura Sayer Section, Township, Range: S32, T10N, R21W

Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none) _____ Slope (%): ____

Subregion (LRR or MLRA): LRR N 124 Lat: 40.840967 Long: -80.719779 Datum: WGS84

Soil Map Unit Name: GoC- NWI classification: _____

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

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

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

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		W-16
Wetland Hydrology Present?	Yes X No ____		

Remarks:

PEM in W-16

LW 3-16 SP 3-5

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ____ No X	Depth (inches): ____
Water Table Present?	Yes ____ No X	Depth (inches) ____
Saturation Present? (includes capillary fringe)	Yes ____ No ____	Depth (inches) 12

Wetland Hydrology Present? Yes X No ____

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

Remarks:

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

Sampling Point 22

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5')			
1. Glyceria Striata	70	Y	OBL
2. Impatiens capensis	20	Y	FACW
3. Floerkea proserpinacoides	10	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- __ 2 - Dominance Test is >50%
- __ 3 - Prevalence Index is ≤3.0[1]
- __ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ____

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

SOIL

Sampling Point: 22

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					LC	
4-12	10YR 4/2	80	10YR 4/4	20	C	M	LC	

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

Hydric Soil Indicators

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ 2 cm Muck (A10) (LRR N)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7)
- __ Polyvalue Below Surface (S8) (MLRA 147, 148)
- __ Thin Dark Surface (S9) (MLRA 147, 148)
- __ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- __ Umbric Surface (F13) (MLRA 136, 122)
- __ Piedmont Floodplain Soils (F19) (MLRA 148)
- __ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- __ 2 cm Muck (A10) (MLRA 147)
- __ Coast Prairie Redox (A16) (MLRA 147, 148)
- __ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Yellow Creek Twp/ Columbiana Co. Sampling Date: 5/4/15
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-23
Investigator(s): Laura Sayre Section, Township, Range: S30, T9N, R2W
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR or MLRA): LRR N124 Lat: 40.640799 Long: -80.715321 Datum: WGS84
Soil Map Unit Name: CoC Coshocton silt loam, 6 to 15 percent slopes NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes ____ No ____
Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: pasture / lawn

LS SP3-7

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants

Sampling Point: 23

Tree Stratum (Plot size 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum (Plot size: 5')			
1. Poa pratensis	70	Y	FACU
2. Taraxacum officinale	15	N	FACU
3. Trifolium repens	7	N	FACU
4. Plantago major	5	N	FACU
5. Claytonia virginica	3	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 0	x 2 = 0
FAC species 3	x 3 = 9
FACU species 97	x 4 = 388
UPL species 0	x 5 = 0
Column Totals: 100 (A)	397 (B)

Prevalence Index = B/A = 3.97

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point 23

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	100					LC	
4-12	10YR 5/3	70	10YR 5/8	30	C	M	LC	

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

Hydric Soil Indicators

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ 2 cm Muck (A10) (LRR N)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7)
- __ Polyvalue Below Surface (S8) (MLRA 147, 148)
- __ Thin Dark Surface (S9) (MLRA 147, 148)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- __ Umbric Surface (F13) (MLRA 136, 122)
- __ Piedmont Floodplain Soils (F19) (MLRA 148)
- __ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) (MLRA 147)
- __ Coast Prairie Redox (A16) (MLRA 147, 148)
- __ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp, Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP 24

Investigator(s): S Sisby Section, Township, Range: S32, T10N, R2W

Landform (hillslope, terrace, etc.): depression Local Relief (concave, convex, none): concave Slope (%): _____

Subregion (LRR or MLRA): LRR N Lat: 40.64014 Long: -80.706569 Datum: WGS84

Soil Map Unit Name: HkA - Holly silt loam, 0 to 2 percent slopes frequently flooded NWI classification: PEM1A

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	W 17

Remarks:

PEM Original name BSisby2SP2

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present? Yes X No ____ Depth (inches): 0.5

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available.

Remarks:

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

Sampling Point: 24

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4.			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1 *Juncus effusus*	70	Y	FACW
2 *Carex lurida*	40	Y	OBL
3 *Carex vulpinoidea*	30	N	OBL
4 *Typha angustifolia*	10	N	OBL
5			
6			
7			
8			
9			
10			
11			
12.			
	150	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ___

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

SOIL

Sampling Point: 24

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					peat	
1-4	10YR 3/1	90	10YR 2/2	10			mucky peat	
4-7	Gley1 3/10Y	95	7.5YR 4/6	5	C	M	loam/clay	
7-10	Gley1 4/10Y	97	7.5YR 4/6	3	C	M	loam/clay	
10-13	Gley1 5/10Y	96	10YR 4/6	4	C	M	loam/clay	

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

[2]Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators.

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- X Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3].

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed).

Type: ___

Depth (Inches): ___

Hydric Soil Present? Yes X No ___

Remarks.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp , Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-25

Investigator(s): B Staby Section, Township, Range: S30, T9N, R2W

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

Subregion (LRR or MLRA): LRR N Lat: 40.84035 Long: -80.708538 Datum: WGS84

Soil Map Unit Name: HkA - Holly silt loam, 0 to 2 percent slopes, frequently flooded NWI classification: PEM1A

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

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

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

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

Hydrophytic Vegetation Present?	Yes	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

Maintained Lawn Trash appears to be buried at this sample plot location, which is the probable cause of the upland mound in between two lobes of the wetland. Original

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Sampling Point: 25

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1 *Poa pratensis*	70	Y	FACU
2 *Trifolium repens*	20	N	FACU
3 *Plantago major*	10	N	FACU
4 *Taraxacum officinale*	5	N	FACU
5 *unknown dicot*	3	N	NI
6			
7			
8			
9			
10			
11			
12.			
	108	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0 x 1 =	0
FACW species	0 x 2 =	0
FAC species	0 x 3 =	0
FACU species	105 x 4 =	420
UPL species	0 x 5 =	0
Column Totals:	105 (A)	420 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft. (6 m) or more in height and less than 3 in. (7.6 cm) DBH

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 25

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/2	70					loam	
	2.5Y 5/4	30					loam	

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

[2]Location: PL= Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: trash and rocky fill

Depth (inches): 4

Hydric Soil Present? Yes ____ No X

Remarks:

US Army Corps of Engineers — Eastern Mountains and Piedmont - Version 2.0

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Yellow Creek Twp / Columbiana Co. Sampling Date: 4/30/15

Applicant/Owner: TetraTech State: OH Sampling Point: SP-26

Investigator(s): Laura Sayre Section, Township, Range: S24, T9N, R2W

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): ____ Slope (%): ____

Subregion (LRR or MLRA): LRR N 124 Lat: 40.640947 Long: -80.704293 Datum: WGS 84

Soil Map Unit Name: FbB-Fairpoint very channery silt loam, 0-8% slopes NWI classification: ____

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

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

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

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

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: open field

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

US Army Corps of Engineers — Eastern Mountains and Piedmont - Version 2.0

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

Sampling Point 26

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rubus allegheniensis	15	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum (Plot size: 5')			
1. Dactylis glomerata	80	Yes	FACU
2. Solidago canadensis	10	No	FACU
3. Solidago rugosa	5	No	FACW
4. Potentilla simplex	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover: ____	20% of total cover: ____		

Dominance Test worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

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

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

Prevalence Index worksheet

Total % Cover of	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point 26

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	7.5YR4/3	80	10YR5/6	20	C	M	LC	

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

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[1]:

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: Rock

Depth (inches): 8

Hydric Soil Present? Yes ____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp, Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-27

Investigator(s): B. Sleby, L. Sayre Section, Township, Range: S32, T10N, R2W

Landform (hillslope, terrace, etc.): slope/depression Local Relief (concave, convex, none): concave Slope (%):

Subregion (LRR or MLRA): LRR N Lat: 40.840369 Long: -80.702993 Datum: WGS84

Soil Map Unit Name: GnB - Glipin silt loam, 2 to 8 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	W-18

Remarks:

PEM. Original name bade/2SP4.

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes X	No	Depth (inches): 1	
Water Table Present?	Yes	No	Depth (inches):	Wetland Hydrology Present?
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):	Yes X No

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

Remarks:

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

Sampling Point: 27

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Sapling Stratum: (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum: (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Herb Stratum: (Plot size: 5')			
1 *Acorus calamus*	50	Y	OBL
2 *Glyceria striata*	25	N	OBL
3 *Dichanthelium clandestinum*	15	N	FAC
4 *Impatiens capensis*	15	N	FACW
5 *Scirpus cyperinus*	10	N	FACW
6 *Carex sp*	5	N	NI
7 *Solidago sp.*	5	N	NI
8 *unknown dicot*	5	N	NI
9			
10			
11			
12			
	130	= Total Cover	
Woody Vine Stratum: (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No

SOIL

Sampling Point: 27

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/1	95	10YR 7/8	5	C	M/PL	clayloam	
8-10	10YR 5/1	80	10YR 7/8	20	C	M/PL	clayloam	

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

[2]Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators.

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock

Depth (inches): 10

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp , Columbiana Co Sampling Date: April 30 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-28

Investigator(s): B Sisby Section, Township, Range: S24, T9N, R2W

Landform (hillslope, terrace, etc.): floodplain Local Relief (concave, convex, none): none Slope (%): ___

Subregion (LRR or MLRA): LRR N Lat: 40.640196 Long: -80.698253 Datum: WGS84

Soil Map Unit Name: BpF - Bethesda very channery silt loam, 25 to 70 percent slopes NWI classification: PEM1C

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	W 19

Remarks:

PEM. Original name BSday2SP5

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

Remarks:

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

Sampling Point: 22

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Sapling Stratum: (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum: (Plot Size: 15')			
1 *Rosa multiflora*	10	Y	FACU
2 *Sambucus sp.*	10	Y	NI
3 *Physocarpus opulifolius*	5	Y	FACW
4			
5			
6			
7			
	25	= Total Cover	
Herb Stratum: (Plot size 5')			
1 *Phalaris arundinacea*	25	Y	FACW
2 *Symplocarpus foetidus*	20	Y	OBL
3 *Urtica dioica*	20	Y	FACU
4 *Leersia oryzoides*	20	Y	OBL
5 *Persicaria sagittata*	10	N	OBL
6 *Rosa multiflora*	5	N	FACU
7			
8			
9			
10			
11			
12			
	100	= Total Cover	
Woody Vine Stratum: (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 57.14% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting *data in Remarks or on a separate sheet*)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - *All herbaceous (non-woody) plants,* 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 X No ___

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

SOIL

Sampling Point: 22

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					loam	
2-8	10YR 5/2	70	7.5YR 4/6	30	C	M/PL	loam	
8-12	Gley1 4/10Y	75	2.5YR 3/6	25	C	M/PL	loam/clay	
12-14	2.5Y 5/2	80	5YR 4/6	20	C	M/PL	loam/clay	

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

[2]Location: PL= Pore Lining, M=Matrix.

Hydric Soil Indicators.

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ *Hydrogen Sulfide (A4)*
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (*MLRA 147, 148*)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- X Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ *Depleted Dark Surface (F7)*
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (If observed)

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: South Field Energy Interconnection Facility City/County: Yellow Creek Twp/ Columbiana Co Sampling Date: 4/30/15
Applicant/Owner: Tetra Tech State: OH Sampling Point: 29
Investigator(s): Laura Sayre Section, Township, Range: S24, T9N, R2W
Landform (hillslope, terrace, etc.) _____ Local relief (concave, convex, none) _____ Slope (%): _____
Subregion (LRR or MLRA): LRR N 124 Lat: 40.640244 Long: -80.698209 Datum: WGS84
Soil Map Unit Name: BpF-Bethesda very channery silt loam, 25-70% slopes NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Old Field

LSP2-2

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present? Yes ____ No ____ Depth (inches): _____
Water Table Present? Yes ____ No ____ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

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

Sampling Point: 29

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharum	10	Y	FACU
2. Prunus serotina	5	Y	FACU
3. Betula populifolia	5	N	FAC
4.			
5.			
6.			
7.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling/Shrub Stratum (Plot size: 15')			
1. Rosa multiflora	50	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 5')			
1. Alliaria petiolata	20	Y	FACU
2. Solidago canadensis	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (Plot size: 30')			
1. Vitis sp.	10	Y	NI
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 0	x 2 = 0
FAC species 5	x 3 = 15
FACU species 95	x 4 = 380
UPL species 0	x 5 = 0
Column Totals: 100 (A)	395 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 29

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 4/2	80	2.5Y 4/2	20	C	M	LC	

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

Hydric Soil Indicators

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147, 148)
- ___ Thin Dark Surface (S9) (MLRA 147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)
Type: Rock / Shale
Depth (inches): 1+

Hydric Soil Present? Yes ___ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp., Columbiana Co Sampling Date: April 30, 2015
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-30
Investigator(s): E. Kennedy Section, Township, Range: S24, T9N, R2W
Landform (hillslope, terrace, etc.): gentle slope Local Relief (concave, convex, none): none Slope (%): 5
Subregion (LRR or MLRA): LRR N Lat: 40.640187 Long: -80.691169 Datum: WGS4
Soil Map Unit Name: BAD - Berks channery silt loam, 15 to 25 percent slopes NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ___	No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:
maintained new field. Original name EKsp12

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes ___	No X	Depth (inches): ___	
Water Table Present?	Yes ___	No X	Depth (inches): ___	Wetland Hydrology Present?
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	Yes ___ No X

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

Remarks:

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

Sampling Point: 30

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Shrub Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Herb Stratum (Plot size 5')			
1	*Trifolium repens*	25	Y	FACU
2	*Dactylis glomerata*	15	Y	FACU
3	*Taraxacum officinale*	10	N	FACU
4	*Plantago lanceolata*	10	N	UPL
5	*Achillea millefolium*	5	N	FACU
6.				
7				
8				
9				
10.				
11				
12				
	65	= Total Cover		

Woody Vine Stratum (Plot size 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW or FAC: 0.00% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	55	x 4 =	220
UPL species	10	x 5 =	50
Column Totals	65 (A)		270 (B)

Prevalence Index = B/A = 4.153846154

Hydrophytic Vegetation Indicators.

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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SOIL

Sampling Point: 30

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR5/3	100					clayloam	

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

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10) (LRR N)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (MLRA 147,148)
___ Thin Dark Surface (S9) (MLRA147, 148)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
___ Umbric Surface (F13) (MLRA 136, 122)
___ Piedmont Floodplain Soils (F19) (MLRA 149)
___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

___ 2 cm Muck (A10) (MLRA 147)
___ Coast Prairie Redox (A16) (MLRA 147, 148)
___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type:
Depth (inches):

Hydric Soil Present? Yes ___ No X

Remarks:

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WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp , Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH SP-31

Investigator(s): E Kennedy Section, Township, Range: S24, T9N, R2W

Landform (hillslope, terrace, etc.): gentle slope Local Relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 40.640252 Long: -80.691095 Datum: WGS84

Soil Map Unit Name: BkD - Berks channery silt loam, 15 to 25 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	W-20

Remarks:

maintained wetland (PEM). Original name EKap11

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):	
Water Table Present?	Yes	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 0	Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections) if available.

Remarks:

VEGETATION (Five Strata) - Use scientific names of plants

Sampling Point: 31

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Shrub Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1 Juncus effusus	50	Y	FACW
2 Carex vulpinoidea	25	Y	FACW
3 Trifolium repens	20	Y	FACU
4 Juncus tenuis	5	N	FAC
5			
6			
7			
8			
9			
10			
11			
12			
	100	= Total Cover	

Woody Vine Stratum (Plot size 30')			
1			
2			
3.			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 66.67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	55	x 4 =	220
UPL species	10	x 5 =	50
Column Totals:	65 (A)		270 (B)

Prevalence Index = B/A = 4.153846154

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No

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

SOIL Sampling Point: 31

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR6/1	90	5YR5/1	10	C	M	clayloam	
3-12	2.5Y6/1	80	5YR5/8	20	C	M	clayloam	

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

Hydric Soil Indicators.

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed).

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

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WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp , Columbiana Co Sampling Date: April 30 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-32

Investigator(s): E Kennedy Section, Township, Range: S18, T9N, R2W

Landform (hillslope, terrace, etc.): gentle sloope Local Relief (concave, convex, none): none Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 40.640518 Long: -80.668676 Datum: WGS84

Soil Map Unit Name: GnC - Gilpin silt loam, 8 to 15 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___	No X	Is the Sampled Area within a Wetland?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X			
Wetland Hydrology Present?	Yes ___	No X			

Remarks:

successional forest. Original name EKap10

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___	Wetland Hydrology Present?	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	Yes ___	No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available.

Remarks.

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

Sampling Point: 32

	Absolute	Dominant	Indicator
Tree Stratum (Plot size: 30')	% Cover	Species?	Status
1 Prunus serotina	50	Y	FACU
2 Acer rubrum	25	Y	FAC
3 Quercus rubra	25	Y	FACU
4			
5			
6			
7			
	100	= Total Cover	
Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5.			
6			
7			
	0	= Total Cover	
Shrub Stratum (Plot Size: 15')			
1 Ulmus americana	10	Y	FACW
2 Prunus serotina	10	Y	FACU
3 Rosa multiflora	2	N	FACU
4			
5			
6			
7			
	22	= Total Cover	
Herb Stratum (Plot size: 5')			
1 Claytonia virginica	25	Y	FAC
2 Galium sp	5	Y	ND
3 Alliaria petiolata	5	Y	FACU
4 Actaea pachypoda	5	Y	UPL
5			
6			
7			
8			
9			
10			
11			
12.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index worksheet:

Total % Cover of		Multiply by	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	50	x 3 =	150
FACU species	92	x 4 =	368
UPL species	5	x 5 =	25
Column Totals:	157	(A)	563 (B)

Prevalence Index = B/A = 3.585987261

Hydrophytic Vegetation Indicators.

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: 32

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/2	100					loam	
3-8	10YR5/8	100					clayloam	
8+	refusal							

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

Hydric Soil Indicators.

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10) (LRR N)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (MLRA 147,148)
___ Thin Dark Surface (S9) (MLRA147, 148)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
___ Umbric Surface (F13) (MLRA 136, 122)
___ Piedmont Floodplain Soils (F19) (MLRA 148)
___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (MLRA 147)
___ Coast Prairie Redox (A16) (MLRA 147, 148)
___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: bedrock

Depth (inches): 8

Hydric Soil Present? Yes ___ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnnection Facilities City/County: Yellow Creek Twp , Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-33

Investigator(s): E Kennedy Section, Township, Range: S18, T9N, R2W

Landform (hillslope, terrace, etc.): slope Local Relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 40.63994 Long: -80.681529 Datum: WGS84

Soil Map Unit Name: BkE - Berks channery silt loam, 25 to 40 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	W-21
Wetland Hydrology Present?	Yes X	No	

Remarks:

pem wetland. Original name EKsp7

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___	
Water Table Present?	Yes ___	No X	Depth (inches): ___	Wetland Hydrology Present? Yes X No
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available.

Remarks:

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

Sampling Point: 33

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1 Prunus serotina	5	Y	FACU
2			
3			
4			
5			
6			
7			
	5	= Total Cover	

Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Shrub Stratum (Plot Size: 15')			
1 Rubus sp	15	Y	ND
2			
3			
4			
5			
6			
7			
	15	= Total Cover	

Herb Stratum (Plot size: 5')			
1 Dichanthelium clandestinum	25	Y	FACW
2 Persicaria sagittata	10	N	OBL
3 Juncus effusus	10	N	FAC
4 Juncus tenuis	10	N	FAC
5 Anthoxanthum odoratum	10	N	FACU
6 Symphyotrichum sp.	5	N	ND
7			
8			
9			
10			
11			
12.			
	70	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	25	x 2 =	50
FAC species	20	x 3 =	60
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	70 (A)		180 (B)

Prevalence Index = B/A = 2.571428571

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No

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

SOIL

Sampling Point: 33

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/2	100					loam	
3-8	10YR4/2	100					loam	
8-12	10YR4/2	90	10YR2/1	10	C	M	clayloam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed).

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

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WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp , Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-34

Investigator(s): E Kennedy Section, Township, Range: Yellow Creek Township

Landform (hillslope, terrace, etc.): slope Local Relief (concave, convex, none): none Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 40.539897 Long: -80.681809 Datum: WGS84

Soil Map Unit Name: BkE - Berks channery silt loam 25 to 40 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes ___	No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks:

shrub. Original name EKap8.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

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

Sampling Point: 34

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1 *Prunus serotina*	5	Y	FACU
2			
3			
4			
5			
6			
7			
	5	= Total Cover	
Sapling Stratum: (Plot Size: 15')			
1			
2			
3.			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum: (Plot Size: 15')			
1 *Malus sp.*	75	Y	ND
2			
3			
4			
5			
6			
7			
	75	= Total Cover	
Herb Stratum: (Plot size: 5')			
1 *Poa sp*	25	Y	ND
2 *Symphyotrichum sp*	15	Y	ND
3 *Achillea millifolium*	5	N	FACU
4 *Potentilla simplex*	2	N	FACU
5			
6			
7			
8			
9			
10.			
11			
12			
	47	= Total Cover	
Woody Vine Stratum: (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet.

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 0.00% (A/B)

Prevalence Index worksheet.

Total % Cover of		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	7 (A)		28 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators.

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

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

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

Hydrophytic Vegetation Present? Yes ___ No X

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

SOIL

Sampling Point: 34

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR4/3	100					loam	
5-9	10YR4/6	100					clay loam	

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

[2]Location: PL= Pore Lining, M=Matrix

Hydric Soil Indicators.

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10) (LRR N)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (MLRA 147,148)
___ Thin Dark Surface (S9) (MLRA147, 148)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
___ Umbric Surface (F13) (MLRA 136, 122)
___ Piedmont Floodplain Soils (F19) (MLRA 148)
___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

___ 2 cm Muck (A10) (MLRA 147)
___ Coast Prairie Redox (A16) (MLRA 147, 148)
___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp , Columbiana Co Sampling Date: April 30, 2016

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-35

Investigator(s): E Kennedy Section, Township, Range: S16, T9N, R2W

Landform (hillslope, terrace, etc.): slope Local Relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 40.639778 Long: -80.681818 Datum: WGS84

Soil Map Unit Name: BkC - Berks channery silt loam, 8 to 15 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	W 22

Remarks.

pem wetland. Original name EKsp8.

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations.

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections) if available.

Remarks.

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

Sampling Point: 35

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5.			
6			
7			
	0	= Total Cover	

Sapling Stratum: (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	

Shrub Stratum: (Plot Size: 15')			
1 *Malus sp.*	5	Y	ND
2			
3			
4			
5			
6			
7			
	5	= Total Cover	

Herb Stratum: (Plot size: 5')			
1 *Persicaria sagittata*	50	Y	OBL
2 *Eutrochium maculatum*	10	Y	FACW
3 *Impatiens capensis*	5	N	FACW
4 *Solidago sp*	5	N	ND
5 *Potentilla simplex*	2	N	FACU
6 *Fragaria virginiana*	2	N	FACU
7			
8			
9			
10			
11			
12.			
	74	= Total Cover	

Woody Vine Stratum: (Plot size: 30')			
1			
2			
3.			
4			
5.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW or FAC: 66.67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	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:	___ (A)		0 (B)

Prevalence Index = B/A = #DIV/0!

Hydrophytic Vegetation Indicators.

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of 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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ___

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

SOIL

Sampling Point: 35

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR4/2	95	5YR4/8	5	C	M	clayloam	
3-12	2.5Y5/2	60	10YR5/8	40	C	M	clayloam	

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

[2]Location: PL= Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147, 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed)

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

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WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont

Project/Site: South Field Energy Interconnection Facilities City/County: Yellow Creek Twp, Columbiana Co Sampling Date: April 30, 2015

Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-36

Investigator(s): E Kennedy Section, Township, Range: Yellow Creek Township

Landform (hillslope, terrace, etc.): slope Local Relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 40.639441 Long: -80.681552 Datum: WGS84

Soil Map Unit Name: BkE - Berks Chamney silt loam, 25 to 40 percent slopes NWI classification: none

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

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

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

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

Hydrophytic Vegetation Present?	Yes X	No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	W-23

Remarks:

pem wetland

HYDROLOGY

Wetland Hydrology Indicators.

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

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

Remarks:

US Army Corps of Engineers — Eastern Mountain and Piedmont - Version 2.0

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

Sampling Point: 36

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Sapling Stratum (Plot Size: 15')			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
Shrub Stratum (Plot Size: 15')			
1 *Morus sp.*	25	Y	NO
2			
3			
4			
5			
6			
7			
	25	= Total Cover	
Herb Stratum (Plot size: 5')			
1 *Juncus effusus*	25	Y	FACW
2 *Rubus allegheniensis*	20	Y	FACU
3 *Ludwigia alternifolia*	5	N	FACW
4 *Fragaria virginiana*	2	N	FACU
5			
6			
7			
8			
9			
10			
11			
12			
	52	= Total Cover	
Woody Vine Stratum (Plot size: 30')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index worksheet:

	Total % Cover of		Multiply by	
OBL species	0	x 1 =	0	
FACW species	30	x 2 =	60	
FAC species	0	x 3 =	0	
FACU species	22	x 4 =	88	
UPL species	0	x 5 =	0	
Column Totals:	52	(A)	148	(B)

Prevalence Index = B/A = 2.846153846

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

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 - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, 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 X No ___

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

SOIL

Sampling Point: 36

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR4/3	100					clayloam	
4-12	10YR6/1	80	10YR6/8	20	C	M	clayloam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) (LRR N)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ *Dark Surface (S7)*
- ___ Polyvalue Below Surface (S8) (MLRA 147,148)
- ___ Thin Dark Surface (S9) (MLRA147, 148)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ *Redox Depressions (F8)*
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ___ Umbric Surface (F13) (MLRA 136, 122)
- ___ Piedmont Floodplain Soils (F19) (MLRA 148)
- ___ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]

- ___ 2 cm Muck (A10) (MLRA 147)
- ___ Coast Prairie Redox (A16) (MLRA 147 148)
- ___ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Appendix D:

Ohio Rapid Assessment Method for Wetlands v. 5.0 Rating Forms

Background Information

Name	Brian Slaby
Date.	04/29/2015
Affiliation.	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number	330-688-0111
e-mail address.	BSlaby@EnviroScienceInc com
Name of Wetland:	W-1
Vegetation Community(ies)	PEM/PFO
HGM Class(es).	Depression
Location of Wetland Include map, address, north arrow, landmarks, distances, roads, etc.	Please refer to site wetlands and water resources map

Lat/Long or UTM Coordinate	40 649235, -80.733789
USGS Quad Name	West Point
County	Columbiana
Township	Madison
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-1	
Wetland Size (acres, hectares) 0 587 acres onsite	

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

Please refer to site wetlands and water resources map.

Comments, Narrative Discussion, Justification of Category Changes

Final score : 47.5 **Category:**	2

Scoring Boundary Worksheet

INSTRUCTIONS The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5 5-8 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species), little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, I e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, I e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies.** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species.

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

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

ORAM v 5.0 Field Form Quantitative Rating

W-1

Site: South Field Energy Interconnection Facilities	Rater(s): B. Slaby	4/29/2015

Metric 1. Wetland Area (size).

2 (max 6 pts.) | 2 (subtotal)

Select one size class and assign score

	>50 acres (>20.2ha) (6 pts)
	Seasonal/intermittent surface water (3)
	10 to <25 acres (4 to <10.1 ha) (4 pts)
	3 to <10 acres (1.2 to <4 ha) (3 pts)
X	0.3 to < 3 acres (012 to <1 2ha) (2 pts)
	0 1 to <0.3 acres (0 04 to <0.12ha) (1 pt)
	<0 1 acres (0 04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8 (max 14 pts.) | 10 (subtotal)

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

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

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

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

Metric 3. Hydrology.

21 (max 30 pts.) | 31 (subtotal)

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

	High pH groundwater (5)
X	Other groundwater (3)
X	Precipitation (1)
X	Seasonal/intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
X	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest) complex (1)
X	Part of riparian or upland corridor (1)

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

	>0 7 (27 6in) (3)
	0.4 to 0 7m (15.7 to 27 6in) (2)
X	<0.4m (<15.7in) (1)

Duration/saturation. Score one or dbl check.

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

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

	None or none apparent (12)
X	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

	ditch
	tile
	dike
	weir
	stormwater input
	point source (nonstormwater)
	filling/grading
X	road bed/RR track
	dredging
	Other: clearing

Metric 4. Habitat Alteration and Development.

10 5 (max 20 pts.) | 41.5 (subtotal)

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

	None or none apparent (4)
X	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

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

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

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

	None or none apparent (9)
X	Recovered (6)
	Recovering (3)
X	Recent or no recovery (1)

41.5 (subtotal this page)

Check all disturbances observed

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

last revised 1 February 2001 jm

ORAM v. 5.0 Field Form Quantitative Rating W-1

Site: South Field Energy Interconnection Facilities	Rater(s): B Slaby	4/29/2015

41.5 subtotal first page

0 max 10 pts. | 41.5 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

6 max 20 pts. | 47.5 subtotal

Metric 6. Plant communities, interspersion, microtopography.

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

	Aquatic bed
2	Emergent
0	Shrub
0	Forest
	Mudflats
	Open Water
	Other_____

6b. Horizontal (plan view) Interspersion.
Score only one.

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

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

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

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

1	Vegetated hummocks/tussucks
1	Coarse woody debris >15cm (6in)
1	Standing dead >25cm (10in) dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

47.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address: http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3
	Question 8a Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	2	
	Metric 2 Buffers and surrounding land use	8	
	Metric 3 Hydrology	21	
	Metric 4 Habitat	10 5	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	6	
	TOTAL SCORE	47.5	Category based on score breakpoints 2

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name.	Emma Kennedy
Date	04/29/2015
Affiliation.	EnviroScience Inc
Address.	5070 Stow Road, Stow, Ohio 44224
Phone Number:	330-688-0111
e-mail address.	EKennedy@EnviroScienceInc com
Name of Wetland:	W-2, W-3, W-4, W-5
Vegetation Communit(ies)	PEM
HGM Class(es)	Depression
Location of Wetland. Include map, address, north arrow, landmarks, distances, roads, etc.	Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 648853, -80 726999; 40.648749, -80 72703; 40 648624, -80 727004, 40 648395, -80 726964
USGS Quad Name	West Point
County	Columbiana
Township	Madison
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-2; W-3, W-4; W-5	
Wetland Size (acres, hectares): Total of 0.060 acres onsite	

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

Please refer to site wetlands and water resources map.

W-2 0.018 acres onsite
W-3 0.002 acres onsite
W-4 0 001 acres onsite
W-5 0 038 acres onsite

Comments, Narrative Discussion, Justification of Category Changes

Final score : 40	**Category:** Modified 2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U.S Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing mineral rich, ground water with a circumneutral ph (5 5-9 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics. overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species), little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands.** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland. Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies.** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species.

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

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

W-2, W-3, W-4, W-5

Site: South Field Energy Interconnection Facilities	Rater(s). E. Kennedy	4/29/2015

Metric 1. Wetland Area (size).

1 (max 5 pts.) | 1 (subtotal)

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1 ha) (4 pts)
	3 to <10 acres (1.2 to <4 ha) (3 pts)
	0.3 to < 3 acres (012 to <1.2ha) (2 pts)
X	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
	<0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

9 (max 14 pts.) | 10 (subtotal)

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

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

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

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

Metric 3. Hydrology.

20 (max 30 pts.) | 30 (subtotal)

3a. Sources of Water. Score all that apply

	High pH groundwater (5)
X	Other groundwater (3)
X	Precipitation (1)
X	Seasonal/intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply

	100 year floodplain (1)
X	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
X	Part of riparian or upland corridor (1)

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

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
X	<0.4m (<15.7in) (1)

or saturation. Score one or dbl check.

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

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

	None or none apparent (12)
X	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

	ditch		point source (nonstormwater)
	tile		filling/grading
	dike	X	road bed/RR track
	weir		dredging
	stormwater input		Other: clearing

Metric 4. Habitat Alteration and Development.

9 (max 20 pts.) | 39 (subtotal)

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

	None or none apparent (4)
X	Recovered (3)
X	Recovering (2)
	Recent or no recovery (1)

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

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

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

	None or none apparent (9)
X	Recovered (6)
X	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

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

39 subtotal this page

ORAM v 5.0 Field Form Quantitative Rating — W-2, W-3, W-4, W-5

Site: South Field Energy Interconnection Facilities	Rater(s): E. Kennedy	4/29/2015

39 subtotal first page

Metric 5. Special Wetlands.

0 (max 10 pts.) | 39 (subtotal)

Check all that apply and score as indicated.

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

Metric 6. Plant communities, interspersion, microtopography.

1 (max 20 pts.) | 40 (subtotal)

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

	Aquatic bed
1	Emergent
0	Shrub
0	Forest
	Mudflats
	Open Water
	Other_____

6b. Horizontal (plan view) Interspersion.
Score only one.

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

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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

40 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address: http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3.
	Question 8a Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	1	
	Metric 2 Buffers and surrounding land use	9	
	Metric 3 Hydrology	20	
	Metric 4 Habitat	9	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	40	Category based on score breakpoints Modified 2

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name.	Ann Gilmore/Mary Gilmore
Date	11/24/2015
Affiliation	EnviroScience Inc.
Address.	5070 Stow Road, Stow, Ohio 44224
Phone Number:	330-688-0111
e-mail address.	agilmore@EnviroScienceInc.com
Name of Wetland:	W-6
Vegetation Communit(ies)	PEM
HGM Class(es)	Depression

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 647239 -80 726646
USGS Quad Name	West Point
County	Columbiana
Township	Madison
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	11/24/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-6	
Wetland Size (acres, hectares): 0 406 acres onsite	

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

Please refer to site wetlands and water resources map.

Comments, Narrative Discussion, Justification of Category Changes

Final score : 47	Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U S Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species

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

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

ORAM v 5.0 Field Form Quantitative Rating

W-6

Site: South Field Energy Interconnection Facilities	Ann Gilmore/Mary Gilmore	11/242015

Metric 1. Wetland Area (size).

2 (max 6 pts.) | 2 (subtotal)

Select one size class and assign score.

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

Metric 2. Upland buffers and surrounding land use.

14 (max 14 pts.) | 16 (subtotal)

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

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

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

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

Metric 3. Hydrology.

16 (max 30 pts.) | 32 (subtotal)

3a. Sources of Water. Score all that apply

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [X] Precipitation (1)
- [ ] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

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

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

3d. Duration of Inundation/saturation. Score one or dbl check.

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

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

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

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] Other clearing

Metric 4. Habitat Alteration and Development.

15 (max 20 pts.) | 47 (subtotal)

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

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

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

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

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

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

Check all disturbances observed

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

47 subtotal this page

last revised 1 February 2001 jbm

ORAM v 5.0 Field Form Quantitative Rating W-6

Site: South Field Energy Interconnection Facilities	Ann Gilmore/Mary Gilmore	4/29/2015

47 subtotal first page

0 max 10 pts. | 47 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

0 max 20 pts. | 47 subtotal

Metric 6. Plant communities, interspersion, microtopography.

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

	Aquatic bed
1	Emergent
	Shrub
	Forest
	Mudflats
	Open Water
	Other_____

6b. Horizontal (plan view) Interspersion.
Score only one.

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

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

	Extensive >75% cover (-5)
	Moderate 25-75% cover (-3)
X	Sparse 6-25% cover (-1)
	Nearly absent <5% cover (0)
	Absent (1)

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

47 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address. http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1
	Question 6 Bogs	YES (NO)	If yes, Category 3.
	Question 7. Fens	YES (NO)	If yes, Category 3
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1. Size	2	
	Metric 2 Buffers and surrounding land use	14	
	Metric 3 Hydrology	16	
	Metric 4 Habitat	15	
	Metric 5 Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	47	Category based on score breakpoints 2

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name.	Ann Gilmore/Mary Gilmore
Date	11/24/2015
Affiliation.	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number:	330-688-0111
e-mail address.	AGilmore@EnviroScienceInc.com
Name of Wetland:	W-7, W-8
Vegetation Communit(ies)	PEM
HGM Class(es)	Depression

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 645928, -80 726759, 40 646036, -80.726583
USGS Quad Name	West Point
County	Columbiana
Township	Madison
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	11/24/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-7; W-8	
Wetland Size (acres, hectares) Total 0.061 acres onsite	

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

Please refer to site wetlands and water resources map.

W-7: 0 049 acres onsite
W-8: 0.012 acres onsite

Comments, Narrative Discussion, Justification of Category Changes

Final score : 46	Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in property establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U S Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5 5-9 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species), little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands.** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the graminoous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species.

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

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

ORAM v 5 0 Field Form Quantitative Rating

W-7; W-8

Site: South Field Energy Interconnection Facilities	Ann Gilmore/Mary Gilmore	11/242015

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 0 (subtotal)

Select one size class and assign score

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10 1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1 ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4 ha) (3 pts)
- [ ] 0.3 to < 3 acres (012 to <1 2ha) (2 pts)
- [ ] 0.1 to <0 3 acres (0.04 to <0.12ha) (1 pt)
- [X] <0 1 acres (0 04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

14 (max 14 pts.) | 14 (subtotal)

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

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

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

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

Metric 3. Hydrology.

16 (max 30 pts.) | 30 (subtotal)

3a. Sources of Water. Score all that apply

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [X] Precipitation (1)
- [ ] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream (5)

3b. Connectivity. Score all that apply

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [X] Part of riparian or upland corridor (1)

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

- [ ] >0 7 (27 6in) (3)
- [ ] 0.4 to 0 7m (15.7 to 27 6in) (2)
- [X] <0.4m (<15.7in) (1)

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

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

Check all disturbances observed

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

3e. Hydroperiod. Score one or dbl check.

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

Metric 4. Habitat Alteration and Development.

15 (max 20 pts.) | 45 (subtotal)

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

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

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

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

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

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

Check all disturbances observed

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

45 (subtotal this page)

last revised 1 February 2001 jhs

ORAM v 5 0 Field Form Quantitative Rating W-7; W-8

Site: South Field Energy Interconnection Facilities	Ann Gilmore/Mary Gilmore	4/29/2015

45 subtotal first page

0 max 10 pts. | 45 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1 max 20 pts. | 46 subtotal

Metric 6. Plant communities, interspersion, microtopography.

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

	Aquatic bed
1	Emergent
	Shrub
	Forest
	Mudflats
	Open Water
	Other_____

6b. Horizontal (plan view) Interspersion.
Score only one.

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

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

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

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

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

Vegetation Community Cover Scale

0	Absent or comprises <0 1ha (0 2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

0	Absent <0 1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2 47 to 9 88 acres)
3	High 4ha (9 88 acres) or more

Microtopography Cover Scale

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

46 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address: http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	0	
	Metric 2 Buffers and surrounding land use	14	
	Metric 3 Hydrology	16	
	Metric 4 Habitat	15	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	46	Category based on score breakpoints 2

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name	Brian Slaby
Date	04/29/2015
Affiliation	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number	330-688-0111
e-mail address	BSlaby@EnviroScienceInc.com
Name of Wetland:	W-9
Vegetation Community(ies)	PEM
HGM Class(es)	Depression

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 648648 -80 720569
USGS Quad Name	West Point
County	Columbiana
Township	Madison
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland W-9	
Wetland Size (acres, hectares) 0.040 acres onsite	

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

Please refer to site wetlands and water resources map.

Comments, Narrative Discussion, Justification of Category Changes

Final score : 46	Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U S Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria, or Phragmites australis*, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing mineral rich, ground water with a circumneutral ph (5 5-8 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands.** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description. the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the graminoous vegetation listed in Table 1 (woody species may also be present) The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species.

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

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

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10. Oak Openings	YES (NO)	If yes, Category 3
	Question 11. Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	0	
	Metric 2 Buffers and surrounding land use	11	
	Metric 3 Hydrology	21	
	Metric 4 Habitat	13	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	46	Category based on score breakpoints 2

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name.	Brian Slaby
Date	04/29/2015
Affiliation	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number:	330-688-0111
e-mail address	BSlaby@EnviroScienceInc com
Name of Wetland:	W-10, W-11
Vegetation Community(ies).	PFO
HGM Class(es).	Depression

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 648807, -80 719299, 40 648657, -80.718814
USGS Quad Name	West Point
County	Columbiana
Township	Madison
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland	W-10, W-11
Wetland Size (acres, hectares)	Total 0 610 acres onsite

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

Please refer to site wetlands and water resources map.

W-10: 0 101 acres onsite
W-11. 0 510 acres onsite

Comments, Narrative Discussion, Justification of Category Changes

Final score : 47.5	Category:	2

Scoring Boundary Worksheet

INSTRUCTIONS The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U S Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** *Is the wetland known to contain* an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland *Go to Question 6*	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5 5-9 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species) little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b

8b	***Mature forested wetlands.*** *Is the wetland a* forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants I e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, I e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native *plant species within its vegetation communities?*	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies.** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species

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

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

ORAM v 5.0 Field Form Quantitative Rating

W-10 & W-11

Site: South Field Energy Interconnection Facilities	Rater(s). B. Slaby	4/30/2015

Metric 1. Wetland Area (size).

2 (max 6 pts.) | 2 (subtotal)

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1 ha) (4 pts)
- 3 to <10 acres (1.2 to <4 ha) (3 pts)
- **2** 0.3 to < 3 acres (012 to <1.2ha) (2 pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8 (max 14 pts.) | 10 (subtotal)

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

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

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

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

Metric 3. Hydrology.

19.5 (max 30 pts.) | 29.5 (subtotal)

3a. Sources of Water. Score all that apply

- High pH groundwater (5)
- **3** Other groundwater (3)
- **1** Precipitation (1)
- **3** Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply

- 100 year floodplain (1)
- **1** Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- **1** Part of riparian or upland corridor (1)

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

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- **1** <0.4m (<15.7in) (1)

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

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

Check all disturbances observed

- ditch
- tile
- dike
- weir
- stormwater input
- point source (nonstormwater)
- filling/grading
- **X** road bed/RR track
- dredging
- Other

3e. Saturation. Score one or dbl check.

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

Metric 4. Habitat Alteration and Development.

13 (max 20 pts.) | 42.5 (subtotal)

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

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

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

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

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

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

Check all disturbances observed

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

42.5 subtotal this page

last revised 1 February 2001 jbm

ORAM v 5.0 Field Form Quantitative Rating W-10 & W-11

Site: South Field Energy Interconnection Facilities	Rater(s) B Slaby	4/30/2015

42.5 subtotal first page

0 max 10 pts. | 42.5 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

5 max 20 pts. | 47.5 subtotal

Metric 6. Plant communities, interspersion, microtopography.

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

	Aquatic bed
2	Emergent
1	Shrub
2	Forest
	Mudflats
	Open Water
	Other

6b. Horizontal (plan view) Interspersion. Score only one.

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

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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

47.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address: http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2. Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7. Fens	YES (NO)	If yes, Category 3
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1. Size	2	
	Metric 2 Buffers and surrounding land use	8	
	Metric 3 Hydrology	19 5	
	Metric 4 Habitat	13	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	5	
	TOTAL SCORE	47 5	Category based on score breakpoints 2

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name	Laura Sayre
Date	04/30/2015
Affiliation	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number	330-688-0111
e-mail address	LSayre@EnviroScienceInc com
Name of Wetland:	W-12
Vegetation Community(ies)	PEM
HGM Class(es)	Depressional
Location of Wetland (include map, address, north arrow, landmarks, distances, roads, etc.	Please refer to site wetlands and water resources map.
Lat/Long or UTM Coordinate	40 647193, -80.717561
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/30/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-12	
Wetland Size (acres, hectares) 0 012 acres onsite	

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

Please refer to site wetlands and water resources map.

Comments, Narrative Discussion, Justification of Category Changes

Final score : 29.5 **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 Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria, or Phragmites australis*, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5 5-9 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics. overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b
8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i e the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present) The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies.** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species.

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

End of Narrative Rating Begin Quantitative Rating on next page.

ORAM v 8.0 Field Form Quantitative Rating

W-12

Site: Southfield Energy Interconnection Facility	Rater(s). L.Sayre	Date: 4/30/2015

Metric 1. Wetland Area (size).

1 (max 6 pts.) | 1 (subtotal)

Select one size class and assign score

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

Metric 2. Upland buffers and surrounding land use.

5 (max 14 pts.) | 6 (subtotal)

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

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

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

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

Metric 3. Hydrology.

10 (max 30 pts.) | 16 (subtotal)

3a. Sources of Water. Score all that apply

- High pH groundwater (5)
- Other groundwater (3)
- [1] Precipitation (1)
- Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply

- 100 year floodplain (1)
- [1] Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

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

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

Duration. Score one or dbl check.

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

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

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

Check all disturbances observed

- ditch
- tile
- dike
- weir
- stormwater input
- [X] point source (nonstormwater)
- [X] filling/grading
- [X] road bed/RR track
- dredging
- [X] Other CULVERT

Metric 4. Habitat Alteration and Development.

10.5 (max 20 pts.) | 26.5 (subtotal)

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

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

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

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

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

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

Check all disturbances observed

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

26.5 subtotal this page

last revised 1 February 2001 jbm

ORAM v 5.0 Field Form Quantitative Rating W-12

Site: Southfield Energy Interconnection Facility	Rater(s): L.Sayre	Date: 4/30/2015

26.5 subtotal first page

0 (max 10 pts.) | 26.5 (subtotal) **Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

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

3 (max 20 pts.) | 29.5 (subtotal) **Metric 6. Plant communities, interspersion, microtopography.**

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

- [ ] Aquatic bed
- [2] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open Water
- [ ] Other_____

6b. Horizontal (plan view) Interspersion.
Score only one.

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

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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

29.5 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address: http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3
	Question 8a. Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	1	
	Metric 2 Buffers and surrounding land use	5	
	Metric 3 Hydrology	10	
	Metric 4 Habitat	10 5	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	29 5	Category based on score breakpoints Category 1

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

Final Category

Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Laura Sayre
Date	04/30/2015
Affiliation	EnviroScience Inc.
Address.	5070 Stow Road, Stow, Ohio 44224
Phone Number:	330-688-0111
e-mail address.	LSayre@EnviroScienceInc com
Name of Wetland:	W-13
Vegetation Communit(ies).	PEM
HGM Class(es).	Riverine

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 643861, -80.717147
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/30/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-13	
Wetland Size (acres, hectares) 0 192 acres onsite	

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

Please refer to site wetlands and water resources map.

Comments, Narrative Discussion, Justification of Category Changes

Final score : 47	**Category: 2**

Scoring Boundary Worksheet

INSTRUCTIONS The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U S Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note. as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-8 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b
8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands.** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants I e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, I e the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland. Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies.** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species

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

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

ORAM v 6 0 Field Form Quantitative Rating

W-13

Site: Southfield Energy Interconnection Facility	Rater(s): L.Sayre	Date: 4/30/2015

Metric 1. Wetland Area (size).

max 6 pts. | subtotal: 2 | 2

Select one size class and assign score

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10 1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10 1 ha) (4 pts)
	3 to <10 acres (1.2 to <4 ha) (3 pts)
2	0.3 to < 3 acres (012 to <1 2ha) (2 pts)
	0.1 to <0 3 acres (0.04 to <0.12ha) (1 pt)
	<0 1 acres (0 04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal: 8 | 10

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

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

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

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

Metric 3. Hydrology.

max 30 pts. | subtotal: 16 | 26

3a. Sources of Water. Score all that apply

	High pH groundwater (5)
	Other groundwater (3)
1	Precipitation (1)
3	Seasonal/intermittent surface water (3)
	Perennial surface water (lake or stream (5)

3b. Connectivity. Score all that apply

	100 year floodplain (1)
1	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

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

	>0 7 (27 6in) (3)
	0.4 to 0 7m (15.7 to 27 6in) (2)
1	<0 4m (<15.7in) (1)

Duration. Score one or dbl check.

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

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

	None or none apparent (12)
7	Recovered (7)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

	ditch		point source (nonstormwater)
	tile	X	filling/grading
	dike		road bed/RR track
	weir		dredging
	stormwater input		Other

Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 16 | 42

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

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

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

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

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

9	None or none apparent (9)
6	Recovered (6)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

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

42 subtotal this page

last revised 1 February 2001 jhn

ORAM v 5.0 Field Form Quantitative Rating W-13

Site:	Rater(s) LSayre	Date: 4/30/2015

42 subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts. | 42 subtotal

Check all that apply and score as indicated.

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

Metric 6. Plant communities, interspersion, microtopography.

5 max 20 pts. | 47 subtotal

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

- [ ] Aquatic bed
- [2] Emergent
- [0] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open Water
- [ ] Other_____

6b. Horizontal (plan view) Interspersion.
Score only one.

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

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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

47 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address: http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3
	Question 8a Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b. Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	2	
	Metric 2 Buffers and surrounding land use	8	
	Metric 3 Hydrology	16	
	Metric 4 Habitat	16	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	5	
	TOTAL SCORE	47	Category based on score breakpoints Category 2

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

Final Category

Choose one	Category 1	Category 2	Category 3
		(Category 2)	

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name	Laura Sayre
Date	04/30/2015
Affiliation	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number	330-688-0111
e-mail address	LSayre@EnviroScienceInc.com
Name of Wetland:	W-14
Vegetation Communit(ies)	PEM
HGM Class(es)	Riverine

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 643601, -80 71642
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/30/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-14	
Wetland Size (acres, hectares): 0 002 acres onsite	

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

Please refer to site wetlands and water resources map.

Comments, Narrative Discussion, Justification of Category Changes

Final score : 48	**Category:** 2

Scoring Boundary Worksheet

INSTRUCTIONS The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5 5-8 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics. overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species), little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description. the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the graminoous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland. Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species.

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

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

ORAM v 5.0 Field Form Quantitative Rating

W-14

Site: Southfield Energy Interconnection Facility | **Rater(s).** L.Sayre | **Date:** 4/30/2015

Metric 1. Wetland Area (size).

max 6 pts. 0 | subtotal 0

Select one size class and assign score

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1 ha) (4 pts)
- 3 to <10 acres (1.2 to <4 ha) (3 pts)
- 0.3 to < 3 acres (012 to <1 2ha) (2 pts)
- 0.1 to <0.3 acres (0 04 to <0 12ha) (1 pt)
- 0 <0 1 acres (0 04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

max 14 pts. 9 | subtotal 9

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

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

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

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

Metric 3. Hydrology.

max 30 pts. 20 | subtotal 29

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

- High pH groundwater (5)
- Other groundwater (3)
- 1 Precipitation (1)
- 3 Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream (5)

3b. Connectivity. Score all that apply

- 1 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest) complex (1)
- Part of riparian or upland corridor (1)

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

- >0 7 (27 6in) (3)
- 0.4 to 0 7m (15.7 to 27 6in) (2)
- 1 <0 4m (<15.7in) (1)

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

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

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

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

Check all disturbances observed

- ditch
- tile
- dike
- weir
- stormwater input
- point source (nonstormwater)
- filling/grading
- road bed/RR track
- dredging
- Other

Metric 4. Habitat Alteration and Development.

max 20 pts. 16 | subtotal 45

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

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

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

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

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

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

Check all disturbances observed

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

45 subtotal this page

last revised 1 February 2001 jim

ORAM v 5 0 Field Form Quantitative Rating W-14

Site Southfield Energy Interconnection Facility	Rater(s): L.Sayre	Date: 4/30/2015

45 subtotal first page

0 max 10 pts | 45 subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3 max 20 pts | 48 subtotal

Metric 6. Plant communities, interspersion, microtopography.

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

- Aquatic bed
- 2 Emergent
- Shrub
- Forest
- Mudflats
- Open Water
- Other_____

6b Horizontal (plan view) Interspersion.
Score only one.

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

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

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

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

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

48 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address. http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1.
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3
	Question 8a Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b. Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	0	
	Metric 2 Buffers and surrounding land use	9	
	Metric 3. Hydrology	20	
	Metric 4 Habitat	16	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	48	Category based on score breakpoints: Category 2

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

Final Category

Choose one	Category 1	(Category 2)	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name	Laura Sayre
Date	04/30/2015
Affiliation	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number	330-688-0111
e-mail address	LSayre@EnviroScienceInc.com
Name of Wetland:	W-15
Vegetation Community(ies)	PEM
HGM Class(es)	Riverine/Depressional

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40 64108, -80 716099
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/30/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland: W-15	
Wetland Size (acres, hectares): 0.158 acres onsite	
Sketch. Include north arrow, relationship with other surface waters, vegetation zones, etc.	
Please refer to site wetlands and water resources map.	
Comments, Narrative Discussion, Justification of Category Changes	
Final score : 23	**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 Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7 5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note. as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0 5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5 5-9 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species), little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands.** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description. the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating

Table 1 Characteristic plant species.

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

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

ORAM v 5.0 Field Form Quantitative Rating

W-15

Site: Southfield Energy Interconnection Facility	Rater(s): L.Sayre	Date: 4/30/2015

Metric 1. Wetland Area (size).

max 6 pts. | subtotal: 1 | 1

Select one size class and assign score

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

Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal: 5 | 6

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

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

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

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

Metric 3. Hydrology.

max 30 pts. | subtotal: 12 | 18

3a. Sources of Water. Score all that apply

- High pH groundwater (5)
- Other groundwater (3)
- 1 — Precipitation (1)
- Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

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

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- 1 — <0.4m (<15.7in) (1)

3c. Duration. Score one or dbl check.

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

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

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

Check all disturbances observed

- ditch
- tile
- dike
- weir
- stormwater input
- point source (nonstormwater)
- X — filling/grading
- X — road bed/RR track
- dredging
- Other

Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 9 | 27

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

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

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

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

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

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

27 — subtotal this page

Check all disturbances observed

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

last revised 1 February 2001 jm

ORAM v 5 0 Field Form Quantitative Rating W-15

Site:	Rater(s): L.Sayre	Date: 4/30/2015

27 subtotal first page

Metric 5. Special Wetlands.

0 max 10 pts | 27 subtotal

Check all that apply and score as indicated.

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

Metric 6. Plant communities, interspersion, microtopography.

-4 max 20 pts | 23 subtotal

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

	Aquatic bed
2	Emergent
0	Shrub
	Forest
	Mudflats
	Open Water
	Other_____

6b. Horizontal (plan view) Interspersion.
Score only one.

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

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

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

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

1	Vegetated hummocks/tussucks
1	Coarse woody debris >15cm (6in)
0	Standing dead >25cm (10in) dbh
0	Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

23 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM score calibration report for the scoring breakpoints between categories at the following address: http://epa.state.oh.us/dsw/401/401.html

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES (NO)	If yes, Category 3.
	Question 2 Threatened or Endangered Species	YES (NO)	If yes, Category 3.
	Question 3 High Quality Natural Wetland	YES (NO)	If yes, Category 3
	Question 4 Significant bird habitat	YES (NO)	If yes, Category 3
	Question 5 Category 1 Wetlands	YES (NO)	If yes, Category 1
	Question 6 Bogs	YES (NO)	If yes, Category 3
	Question 7 Fens	YES (NO)	If yes, Category 3.
	Question 8a Old Growth Forest	YES (NO)	If yes, Category 3
	Question 8b Mature Forested Wetland	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9b Lake Erie Wetlands - Restricted	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 9d Lake Erie Wetlands – Unrestricted with native plants	YES (NO)	If yes, Category 3
	Question 9e Lake Erie Wetlands - Unrestricted with invasive plants	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
	Question 10 Oak Openings	YES (NO)	If yes, Category 3
	Question 11 Relict Wet Prairies	YES (NO)	If yes, evaluate for Category 3, may also be 1 or 2
Quantitative Rating	Metric 1 Size	0	
	Metric 2 Buffers and surrounding land use	5	
	Metric 3 Hydrology	12	
	Metric 4 Habitat	9	
	Metric 5 Special Wetland Communities	0	
	Metric 6 Plant communities, interspersion, microtopography	-4	
	TOTAL SCORE	23	Category based on score breakpoints Category 1

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

Final Category

Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name	Brian Slaby
Date	04/29/2015
Affiliation	EnviroScience Inc.
Address	5070 Stow Road, Stow, Ohio 44224
Phone Number:	330-688-0111
e-mail address	BSlaby@EnviroScienceInc.com
Name of Wetland:	W-16, W-17
Vegetation Communit(ies)	PEM
HGM Class(es)	Depression

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

Please refer to site wetlands and water resources map.

Lat/Long or UTM Coordinate	40.640622, -80.7093, 40 640604, -80.70874
USGS Quad Name	West Point
County	Columbiana
Township	Yellow Creek
Section and Subsection	
Hydrologic Unit Code	#05030101
Site Visit	04/29/2015
National Wetland Inventory Map	X
Ohio Wetland Inventory Map	
Soil Survey	X
Delineation report/map	X

Name of Wetland	W-16, W-17	
Wetland Size (acres, hectares)	Total 0.844 acres onsite	

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

Please refer to site wetlands and water resources map

W-16. 0.139 acres onsite
W-17. 0 706 acres onsite

Comments, Narrative Discussion, Justification of Category Changes

Final score : 43	Category:	Modified 2

Scoring Boundary Worksheet

INSTRUCTIONS The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland* In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5 0 In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	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

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

Narrative Rating

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

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U S Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17 95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000)	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	(NO) Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland Go to Question 3	(NO) Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	(NO) Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	(NO) Go to Question 5
5	**Category 1 Wetlands** Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis,* or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	(NO) Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp , 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	(NO) Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9 0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	(NO) Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics. overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years, an all-aged structure and multilayered canopies, aggregations of canopy trees interspersed with canopy gaps, and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland Go to Question 8b	(NO) Go to Question 8b

8b	**Mature forested wetlands.** Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17 7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	(NO) Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands.** Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	(NO) Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the graminoous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality	YES Wetland is a Category 3 wetland Go to Question 11	(NO) Go to Question 11
11	**Relict Wet Prairies.** Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1 Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e g Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	(NO) Complete Quantitative Rating