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# Wetlands and Other Waters

# Delineation Report

Prepared for:

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for the

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

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Project No. 7480

Date: December 22, 2015

## 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 |
| | 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 |
| | b | | | | | 260 | 0.018 | | Alternate |
| | c | | | | | 187 | 0.013 | | Alternate |
| | d | | | | | 18 | 0.001 | | Alternate |
| | 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 |
| | 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 |
| | 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

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Date 12/8/201. Path: P:\10_Projects\TTetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map1_Locati...d

Basemap courtesy of Esri.

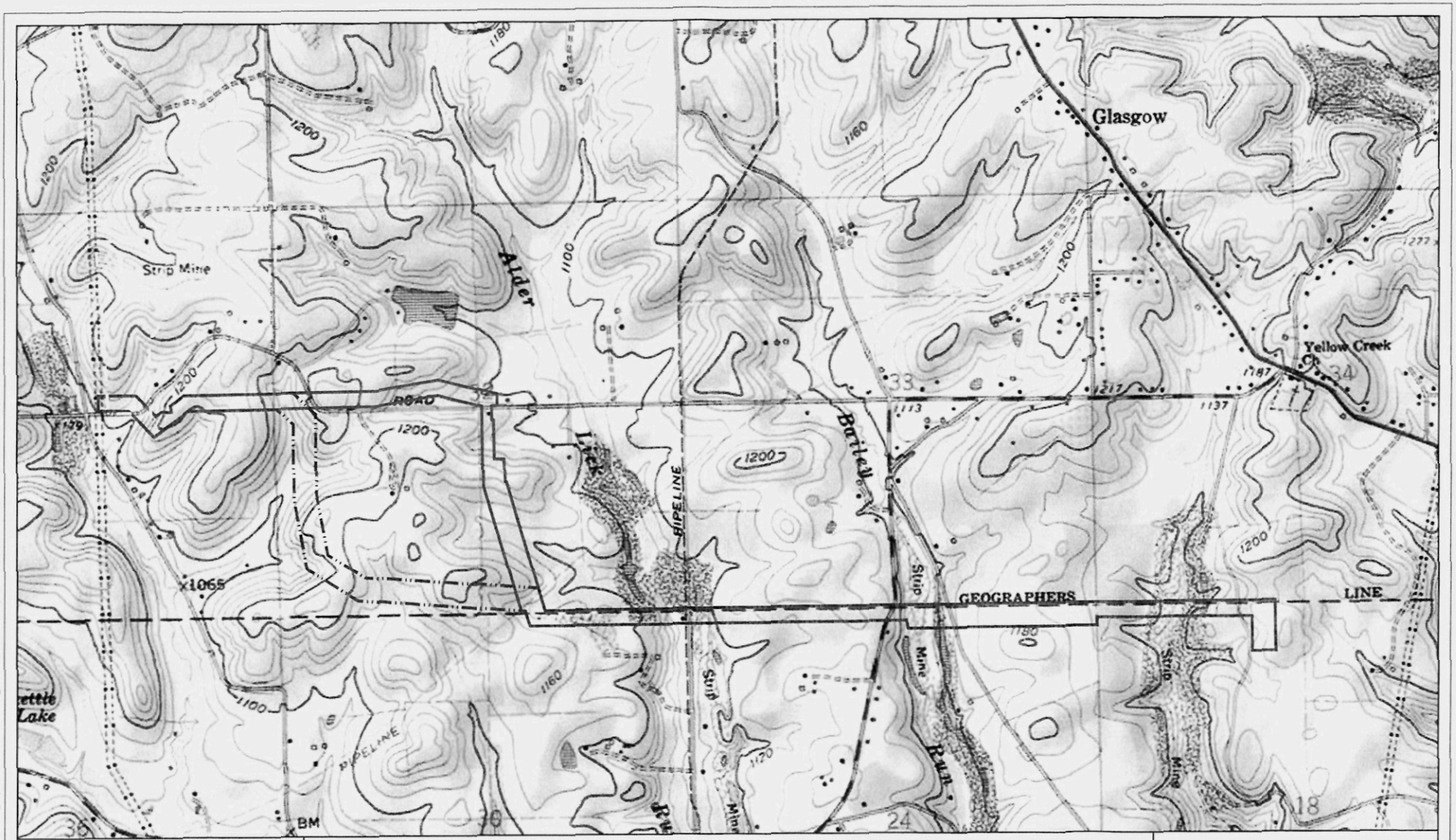


Figure 2. USGS 7.5-minute Topographic Map of West Point Quadrangle. South Field Energy Interconnection Facilities.

Project Area
Preferred Route
Alternate Route

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

EnviroScience
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Basemap courtesy of National Geographic Society (2013).

Date: 12/8/201 Path: P:\10_Projects\TTetraTech\470NR\7480_Velksville_Delineation\GIS_UPDATED_12072015\Map2_Topo.

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

Switchyard
Alternate Route
Preferred Route

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

EnviroScience
Excellence In Any Environment

Date: 12/9/201... Path: P:\10_Projects\1\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map3_NWI.n...

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

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

EnviroScience
Excellence In Any Environment

Basemap courtesy of Esri. Soil data courtesy of SSURGO.

Date: 12/9/201... Path: P:\10_Projects\1\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map4_Soil.m...

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

Basemap courtesy of Esri.

Date: 12/8/201 Path: P:\10_Projects\Tetra Tech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Overv...d

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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Date: 12/14/20 Path: P:\10_Projects\TTetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site

Basemap courtesy of Esri.

Figure 5.02. 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

5.02

EnviroScience
Excellence In Any Environment

Date 12/14/2c Path P:\10_Projects\TTetraTech\470NR7480_Wellsville_Delineation\GIS_UPDATED_12072015\Maps5_Site

Basemap courtesy of Esri.

Figure 5.03. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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

0 130 260 520 Feet

0 30 60 120 Meters

5.03

EnviroScience
Excellence In Any Environment

Date: 12/14/20 Path: P:\10_Projects\TTetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site s.

Basemap courtesy of Esri.

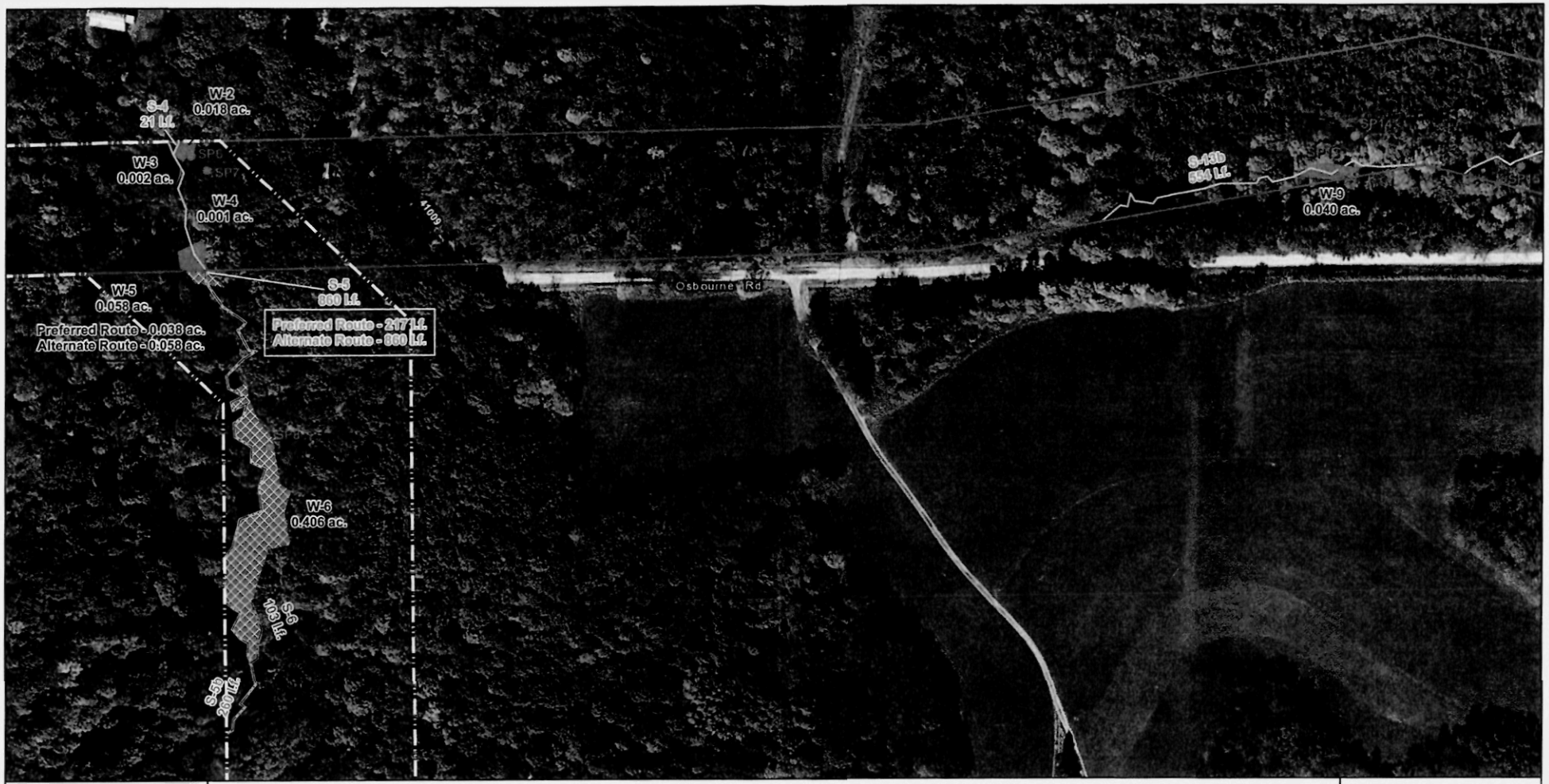

Figure 5.04. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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

EnviroScience
Excellence In Any Environment

Date 12/14/20 Path P:\10_Projects\TTetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site...

Basemap courtesy of Esri.

Figure 5.05. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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

0 130 260 520 Feet

0 30 60 120 Meters

5.05

EnviroScience
Excellence In Any Environment

Path: P:\10_Projects\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site...

Date: 12/14/2...

Basemap courtesy of Esri.

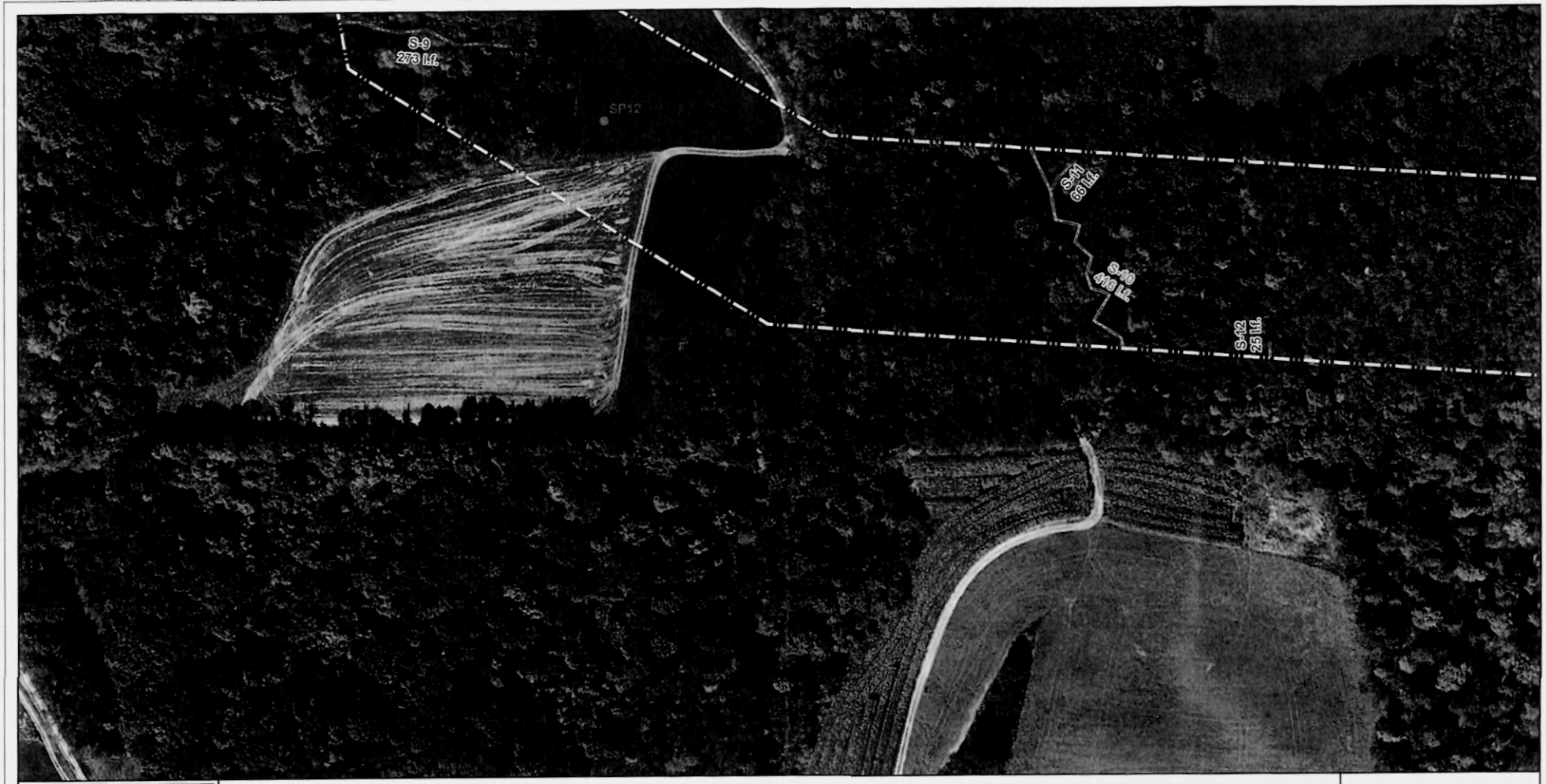

Figure 5.06. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site I...

Basemap courtesy of Esri.

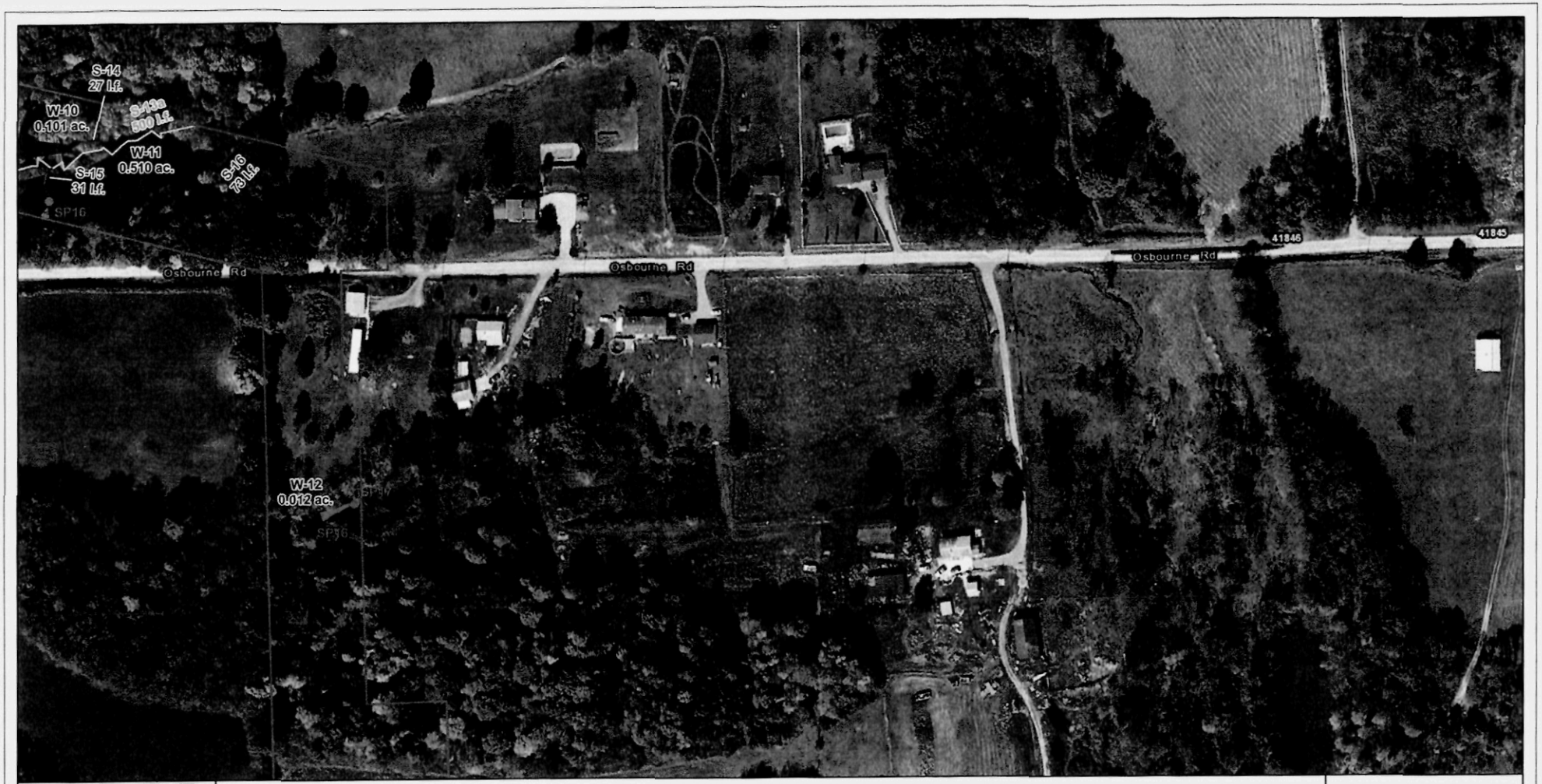

Figure 5.07. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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

0 130 260 520 Feet

0 30 60 120 Meters

5.07

EnviroScience
Excellence In Any Environment

Date: 12/14/20... Path: P:\10_Projects\TetraTech\472NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site n...

Basemap courtesy of Esri.

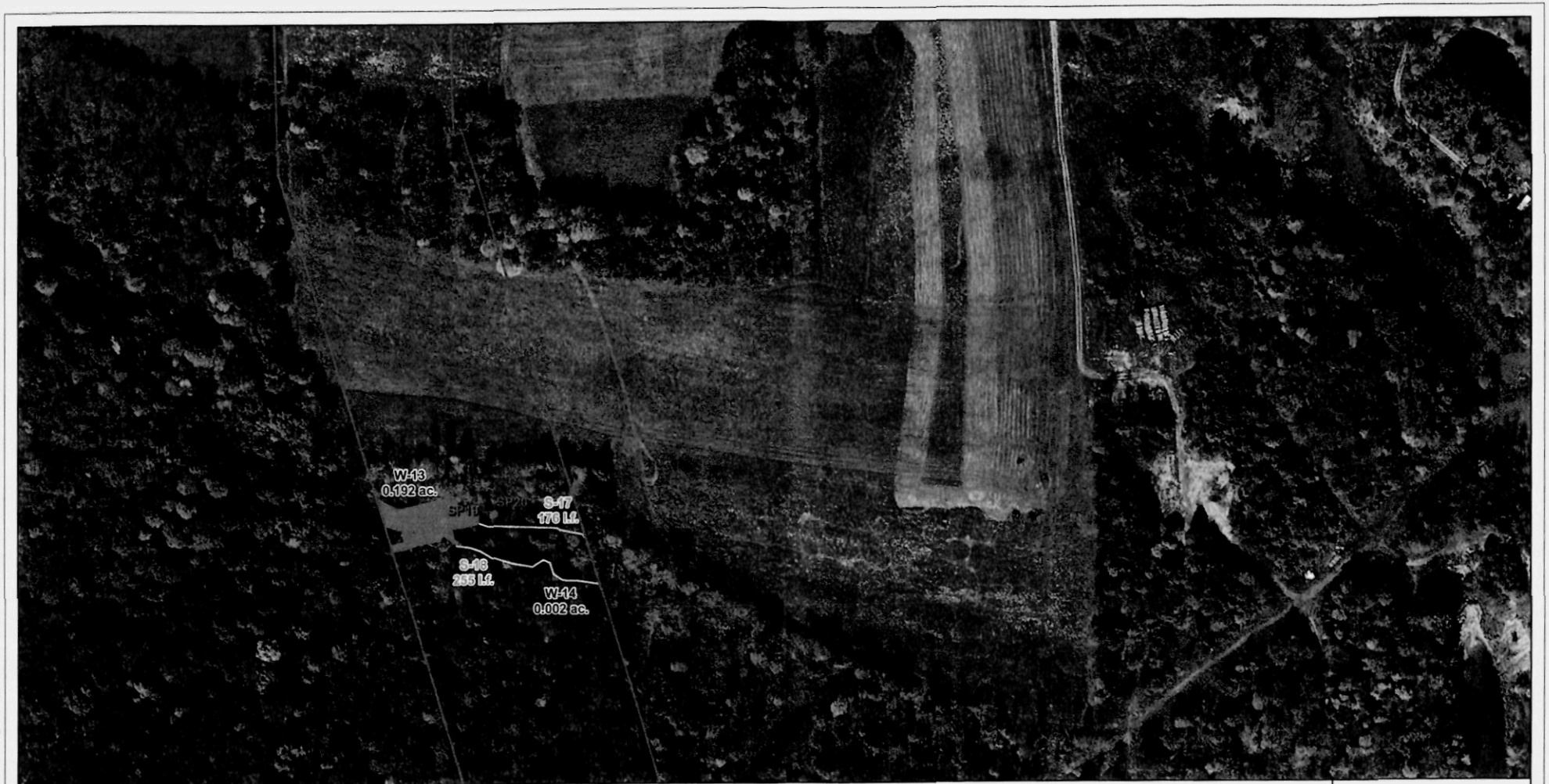

Figure 5.08. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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

5.08

EnviroScience
Excellence In Any Environment

Date: 12/14/20 Path: P:\10_Projects\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site I...

Basemap courtesy of Esri

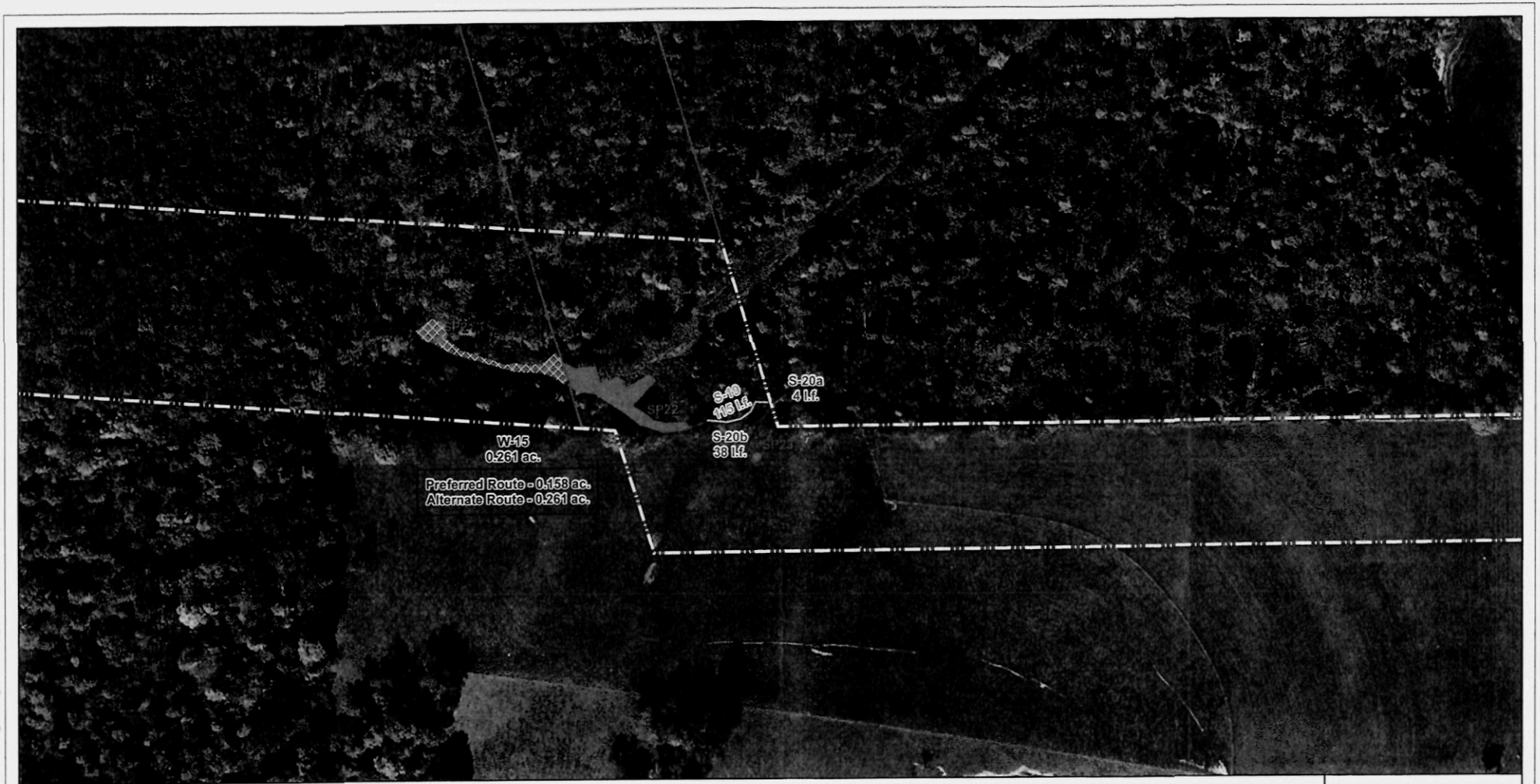

Figure 5.09. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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

EnviroScience
Excellence In Any Environment

Date: 12/14/20 Path: P:\10_Projects\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site

Basemap courtesy of Esri.

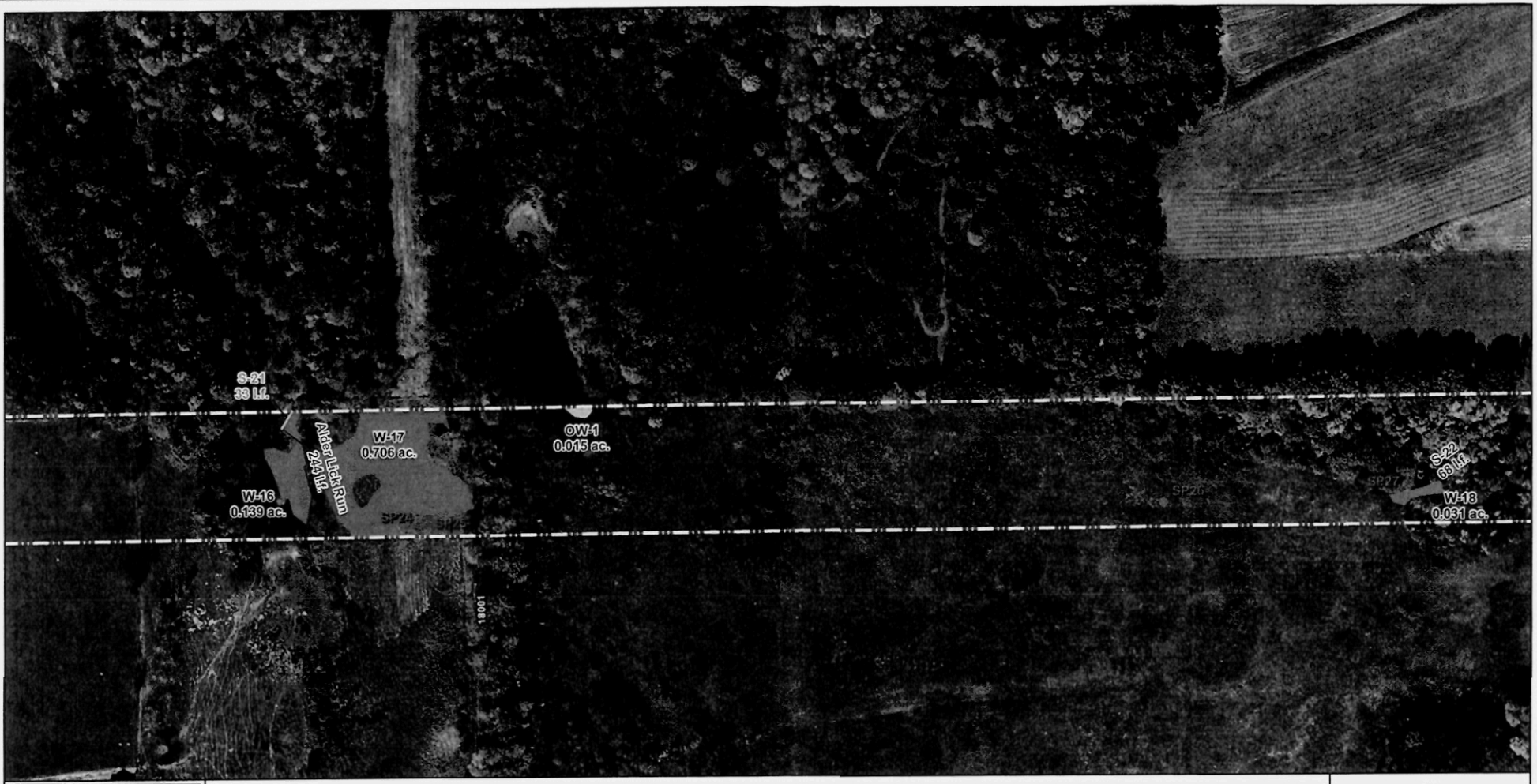

Figure 5.10. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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
Excellence In Any Environment

Date: 12/14/2.
Path: P:\10_Projects\TTeraTech\476NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site.

Basemap courtesy of Esri.

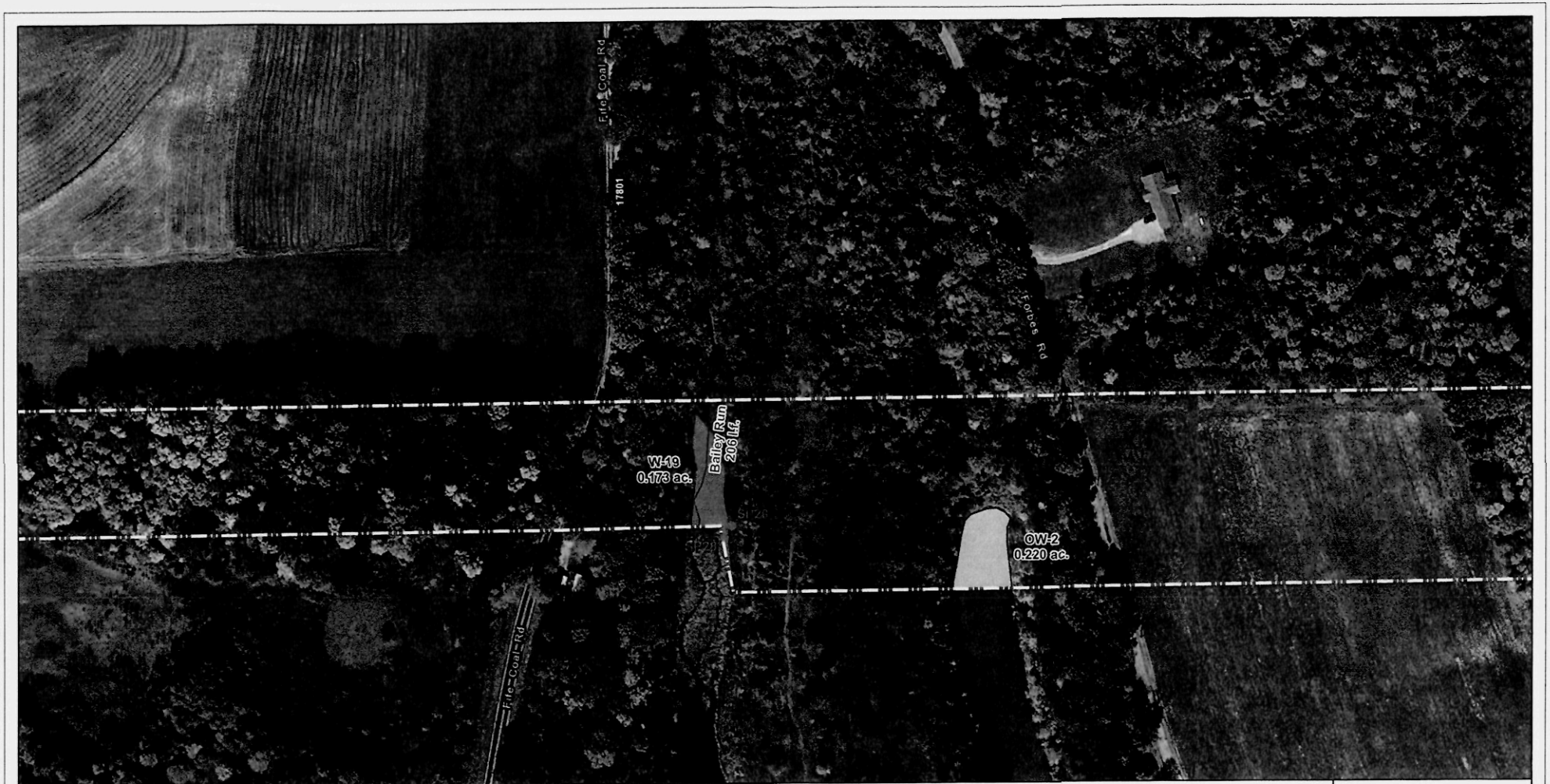

Figure 5.11. Site Map of Wetlands and Other Water Resources.
South Field Energy Interconnection Facilities.

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

Date: 12/14/20 Path: P:\10_Projects\TTetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site i...

Basemap courtesy of Esri.

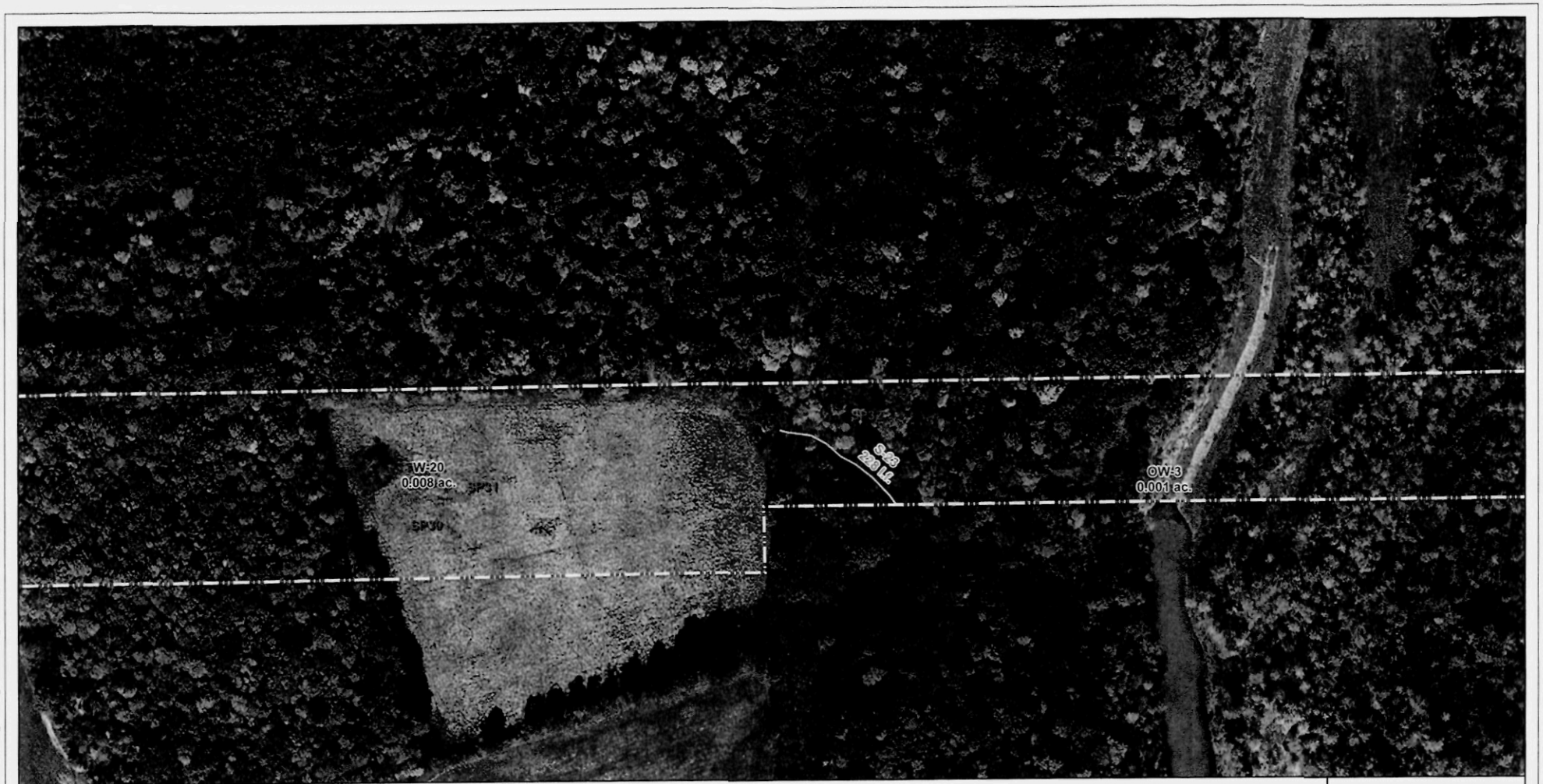

*Figure 5.12. Site Map of Wetlands and Other Water Resources.*
South Field Energy Interconnection Facilities.

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
Excellence In Any Environment

Date: 12/14/20... Path: P:\10_Projects\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site I...

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

0 130 260 520 Feet

0 30 60 120 Meters

5.13

EnviroScience
Excellence In Any Environment

Date: 12/14/20 Path: P:\10_Projects\TetraTech\470NR\7480_Wellsville_Delineation\GIS_UPDATED_12072015\Map5_Site.r.

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

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 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 | | |

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

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

## 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR 5/3 | 100 | | | | | LC | |
| 4-12 | 10YR 5/3 | 80 | 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)

**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:



## 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. Sieby, 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 ___ | | W-1 |
| Wetland Hydrology Present? | Yes X | No ___ | | |

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): ___ | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 2 | 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: 2

| 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. *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, aproximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub** - Woody plants, excluding woody vines, aproximately 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 % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR 4/1 | 90 | 7.5YR 4/6 | 10 | C | M/PL | clayloam | |
| 3-6 | 10YR 5/1 | 90 | 7.5YR 4/6 | 10 | C | M/PL | clayloam | |
| 6-11 | 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: 40.649509 Long: -80.734186 Datum: WGS84

Soil Map Unit Name: Bke Berks channey 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 |
| Hydric Soil Present? | Yes _____ | No X |
| Wetland Hydrology Present? | Yes _____ | No X |

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

Remarks:

Forest

LS - 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. Aralia nudicaulis | 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 | 38 | x 2 = | 76 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 97 | x 4 = | 388 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 138 (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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 5/3 | 100 | | | | | LC | |
| 8-12 | 10YR 5/3 | 80 | 10YR 5/4 | 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: -80.733835 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 ____ | | W-1 |
| Wetland Hydrology Present? | Yes X No ____ | | |

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): ____

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: 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 % | 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 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 ____ 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:
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



### 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 tricanthos | 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 | 8 | 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 purpureum | 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.)

## 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) | Matrix % | Redox Features Color (moist) | Redox % | 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: 40.648828 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:

perm 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. *Cerastium 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 7.5YR 4/1 | 95 | 5YR 4/6 | 5 | C | M | clayloam | |
| 4-12 | 7.5YR 5/1 | 80 | 10YR6/8 | 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: _____

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 29, 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: 40.648766 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 ewsp14.

### 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: 7

| Tree Stratum (Plot size: 30' ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 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. *Aralia nudicaulis* | 5 | N | FACU |
| 4. *Polystichum acrostichoides* | 5 | N | FACU |
| 5. *Claytonia virginica* | 5 | N | FAC |
| 6. *Rubus sp.* | 1 | N | NO |
| 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR 4/2 | 100 | | | | | loam | |
| 3-9 | 10YR6/4 | 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 138)
- ___ 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:



## 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-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: 40.647682 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 Y 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 W-6 |
| Wetland Hydrology Present? | Yes Y No ___ | | |

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): 17"

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:

## 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. Galium palustre | 10 | N | OBL |
| 5. Urtica dioica | 10 | N | FACU |
| 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) | Matrix % | Redox Features Color (moist) | Redox % | 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: Tetra 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 120 Lat: 40.948043 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 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-8

Remarks:
PEM along mouth of S-7

### 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)
- ___ 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 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-9

**Tree Stratum** (Plot size: 30') — 50% of total cover: ____ 20% of total cover: ____

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | ____ = Total Cover | | |

**Sapling/Shrub Stratum** (Plot size: 15') — 50% of total cover: ____ 20% of total cover: ____

| | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| | ____ = Total Cover | | |

**Herb Stratum** (Plot size: 5') — 50% of total cover: ____ 20% of total cover: ____

| | | | |
|---|---|---|---|
| 1. Poa palustris | 30 | Y | FACW |
| 2. Symphyotrichum prenanthoides | 20 | Y | FAC |
| 3. Senna virginianum | 10 | Y | FAC |
| 4. Galium palustre | 5 | N | OBL |
| 5. Hydrocotyle sp | 5 | N | NI |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 70 = Total Cover | | |

**Woody Vine Stratum** (Plot size: 30') — 50% of total cover: 35 20% of total cover: 14

| | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = 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: 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 ____

## 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | 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)
- __ 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: Tera Tech State: OH Sampling Point: SP-10

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

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

Subregion (LRR or MLRA): LRR N 126 Lat: 40.645928 Long: -80.76807 Datum: WGS 84

Soil Map Unit Name: BKE- Bowes 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 W-7 |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Pen along S-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)
- 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') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 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') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Poa palustris | 50 | Y | FACW |
| 2. Impatiens capensis | 25 | Y | FACW |
| 3. Scirpus hattorianus | 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') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 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: 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 ____

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



## 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) | Matrix % | Redox Features Color (moist) | Redox % | 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)
- __ 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-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 124 Lat: 40.645837 Long: -80.725608 Datum: WGS 84
Soil Map Unit Name: BKD - Berks Channery Silt 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 | Is the Sampled Area within a Wetland? Yes ____ No Y |
| Hydric Soil Present? | Yes ____ | No Y | |
| Wetland Hydrology Present? | 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)
- ___ Tree 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 Y

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: 18 | | |

| 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. Mitchella repens | 2 | N | FACU |
| 6. Galium spi | 2 | N | NE |
| 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 Y

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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3" | 10YR 4/3 | 100 | | | | | Silt loam | |
| 3-11" | 10YR 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): Ann 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 Chagrin 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

**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. Medicago sativa | 75 | Y | UPL |
| 2. Lamia 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 = |
| 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10" | 10YR 3/3 | 80 | 10YR 6/1 | 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 Slaby 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: 40.646852 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? | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): 8 | 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: 13

| 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* | 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 (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | 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 138)
- ___ 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. Slaby 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: 40.648795 Long: -80.720421 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 ___ | 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. 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[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, aproximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub** - Woody plants, excluding woody vines, aproximately 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 % | Type[1] | 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 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) (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): B. 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: 40.64865 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 ____ | Is the Sampled Area within a Wetland? | Yes ____ No X |
| Hydric Soil Present? | 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

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 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 | |

**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, aproximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, aproximately 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: 15

**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 % | 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 138)
- ___ 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-18

Investigator(s): B. Staby 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, 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 ___ | | W-11 |
| Wetland Hydrology Present? | Yes X | No ___ | | |

Remarks:

PFO. Original name BSday2 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:

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

Sampling Point: 16

| Tree Stratum (Plot size: 30' ) | Absolute % Cover | Dominant Species? | Indicator 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, aproximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub** - Woody plants, excluding woody vines, aproximately 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: 16

**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 % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR 3/1 | 100 | | | | | clay/loam | |
| 3-9 | 2.5Y 4/1 | 95 | 5YR 3/4 | 5 | C | M/PL | clay/loam | |
| 9-14 | 2.5Y 4/1 | 90 | 5YR 4/6 | 10 | 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 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-Cishocton silt loams, 6 to 8 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 X | No ____ | |
| 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. Pallium 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) | Matrix % | Redox Features Color (moist) | Redox % | 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: South Field 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: 40.1471044 Long: -80.717715 Datum: WGS84

Soil Map Unit Name: GoC-Gilpin-Cosmocton silt loams, 6-15 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 4/3 | 100 | | | | | LC | |
| 6-12 | 10YR 6/3 | 95 | 10YR 7/4 | 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 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: 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 Series 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

SPL3-3

### 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: _____ | | |

**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 _____

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

## 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) | Matrix % | Redox Features Color (moist) | Redox % | 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 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: 5/4/16
Applicant/Owner: Tetra Tech State: OH Sampling Point: SP-2D
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: 40.643885 Long: -80.716769 Datum: WGS84
Soil Map Unit Name: GoC-Gilpin-Coshocton silt loams, 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 ____ 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:
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 | FACU |
| 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. Symphyotrichum sp. | 20 | Y | NI |
| 3. Claytonia virginica | 10 | N | FACU |
| 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 5/2 | 100 | | | | | LC | |
| 8-15 | 10YR 3/3 | 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)
- ___ 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: Pipe Line 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: NAD83
Soil Map Unit Name: CuC-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 ____ | W-16 |
| 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

| 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 | 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. Verbena virginica | 10 | N | FACW |
| 7. Persicaria sagittata | 10 | N | OBL |
| 8. Eupatorium maculatum | 8 | N | FACW |
| 9. Boehmeria cylindrica | 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) | Matrix % | Redox Features Color (moist) | Redox % | 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: 40.740967 Long: -80.715979 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-16

LW 3-10 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)
- __ 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): 6 |

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. Eleocharis palustrinacoides | 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 4/2 | 100 | | | | | LC | |
| 6-12 | 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: TetraTech 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 N 124 Lat: 40.640799 Long: -80.715321 Datum: WGS84
Soil Map Unit Name: GC-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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 10YR 5/2 | 100 | | | | | LC | |
| 6-12 | 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): B. Slaby 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: -80.708569 Datum: WGS84

Soil Map Unit Name: HxA - 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 BSday2SP2

## 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

| 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* | 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 % | Type[1] | 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 138)
- ___ 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. Slaby 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

| 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. *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 % | Type[1] | 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:



## 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: 40.640147 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:

## 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. Dactylus glomerata | 80 | Yes | FACU |
| 2. Solidago canadensis | 10 | No | FACU |
| 3. Solidago rugosa | 5 | No | FACU |
| 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 % | Type[1] | 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[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): 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): S. Slaby, 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: 40.640399 Long: -80.702993 Datum: WGS84

Soil Map Unit Name: GnB - Gilpin silt loam, 2 to 6 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 bsday2SP4.

### 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): ____ |
| 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: 27

| 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. *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. *Saliciego 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 | |

**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 ____

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

## 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 10YR 5/1 | 95 | 10YR 7/8 | 5 | C | M/PL | clayloam | |
| 8-10 | 10YR 6/1 | 80 | 10YR 7/6 | 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. Slaby 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 ___ | | W-19 |
| Wetland Hydrology Present? | Yes X No ___ | | |

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

| 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. *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, aproximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub** - Woody plants, excluding woody vines, aproximately 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 % | Type[1] | 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: -80.648209 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 | | |

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: 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

## 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) | Matrix % | Redox Features Color (moist) | Redox % | 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 slooe Local Relief (concave, convex, none): none Slope (%): 5
Subregion (LRR or MLRA): LRR N Lat: 40.640187 Long: -80.691189 Datum: WGS4
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 ___ | 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): ___ |
| 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: 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 | |

**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, aproximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub** - Woody plants, excluding woody vines, aproximately 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: 30

**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 % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12 | 10YR5/3 | 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, 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 EKsp11.

### 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 (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | 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 138)
- ___ 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-32

Investigator(s): E. Kennedy Section, Township, Range: S18, T9N, R2W

Landform (hillslope, terrace, etc.): gentle slooe Local Relief (concave, convex, none): none Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 40.640516 Long: -80.688876 Datum: WGS84

Soil Map Unit Name: GnC - Gilpin silt loam, 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 ___ | 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 EKsp10.

## 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: 32

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator 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. *Allaria 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 (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | 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 Interconnection 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 ___ | | |
| 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): ___ |
| 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: 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) | Matrix % | Redox Features Color (moist) | Redox % | 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 | 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)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) (LRR N, MLRA 138)
- ___ 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-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: 40.639897 Long: -80.681609 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 EKsp8.

## 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: 34

| 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. *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 millifolia* | 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 % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 10YR4/3 | 100 | | | | | loam | |
| 5-9 | 10YR4/6 | 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 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-35

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: 40.639778 Long: -80.681818 Datum: WGS84

Soil Map Unit Name: BkC - Berks channery silt loam, 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 ___ | |
| Wetland Hydrology Present? | Yes X | No ___ | W-22 |

Remarks:

pem wetland. Original name EKsp6.

### 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 (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR4/2 | 95 | 5YR4/6 | 5 | C | M | clayloam | |
| 3-12 | 2.5Y6/2 | 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:



# 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 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-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:

## 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. *Malus sp.* | 25 | Y | ND |
| 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 alternifiora* | 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, aproximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub** - Woody plants, excluding woody vines, aproximately 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) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-4 | 10YR4/3 | 100 | | | | | clayloam | |
| 4-12 | 10YR6/1 | 80 | 10YR5/8 | 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 Communit(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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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.**





| 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)

3d. Inundation/saturation. Score one or dbl check.

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

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

- [ ] None or none apparent (12)
- [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)

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

41.5 (subtotal this page)

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 hummucks/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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | NO<br><br>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.<br><br>W-2: 0.018 acres onsite<br>W-3: 0.002 acres onsite<br>W-4: 0.001 acres onsite<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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 graminoeus 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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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 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.**





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 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 (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)

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
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [X] road bed/RR track
- [ ] dredging
- [ ] Other: clearing

3e. Inundation/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)

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

39 (subtotal this page)

last revised 1 February 2001 jm

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

0 max 10 pts. | 39 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. | 40 subtotal

## Metric 6. Plant communities, interspersion, microtopography.

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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | NO<br><br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>*Wetland is a Category* 1 wetland<br>Go to Question 6 | (NO)<br>*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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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 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.**





| 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 (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.

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)

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)

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

## Metric 5. Special Wetlands.

0 (max 10 pts.) 47 (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.

0 (max 20 pts.) 47 (subtotal)

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 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 |

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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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)<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | (NO)<br><br>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.<br><br>W-7: 0.049 acres onsite<br>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 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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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 graminoeus 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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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 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.**





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. Duration/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:

## 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 jim

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 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 (0.247 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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | NO<br><br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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 60 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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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 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 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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>*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<br><br>Narrative Rating No. 5 | YES<br><br>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)<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | (NO)<br><br>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.<br><br>W-10: 0.101 acres onsite<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | NO<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | NO<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | NO<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | NO<br>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<br>Go to Question 9b | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | NO<br>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. 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).

max 8 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.

| | |
|---|---|
| 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.

max 30 pts. | subtotal: 19.5 | 29.5

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) |

on/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) |

3e. 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 | | filling/grading |
| | dike | X | road bed/RR track |
| | weir | | dredging |
| | stormwater input | | Other: |

## Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal: 13 | 42.5

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 | | shrub/sapling removal |
| | grazing | | herbaceous/aquatic bed removal |
| X | clearcutting | X | sedimentation |
| | selective cutting | | dredging |
| X | woody debris removal | | farming |
| | toxic pollutants | | nutrient enrichment |

subtotal this page: 42.5

last revised 1 February 2001 jm

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 hummucks/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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | NO<br><br>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 Communit(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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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 graminoeus 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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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.**





| 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 (012 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) |

3d. Inundation/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.

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

Check all disturbances observed

| | | | |
|---|---|---|---|
| | ditch | | point source (nonstormwater) |
| | tile | X | filling/grading |
| | dike | X | road bed/RR track |
| | weir | | dredging |
| | stormwater input | 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 | | shrub/sapling removal |
| | grazing | | herbaceous/aquatic bed removal |
| | clearcutting | | sedimentation |
| | selective cutting | | dredging |
| | woody debris removal | | farming |
| | toxic pollutants | | nutrient enrichment |

26.5 subtotal this page

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 hummucks/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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | NO<br><br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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 graminoeus 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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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.**





| 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)

on/saturation. 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)

3e. 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)
- [X] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] 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
- [X] grazing
- [X] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [X] farming
- [X] nutrient enrichment

subtotal this page: 42

ORAM v. 5.0 Field Form Quantitative Rating W-13

| Site: | Rater(s): L.Sayre | Date: 4/30/2015 |
|---|---|---|

42 subtotal first page

## 0 (max 10 pts.) 42 (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 (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 |
| | 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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | NO<br><br>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-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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | NO<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | NO<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | NO<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | NO<br>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<br>Go to Question 9b | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | NO<br>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.**





| Site: Southfield Energy Interconnection Facility | Rater(s): L.Sayre | Date: 4/30/2015 |
|---|---|---|

## 0 / 0 Metric 1. Wetland Area (size).

max 5 pts. | subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (5 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)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [0] <0.1 acres (0.04ha) (0 pts)

## 9 / 9 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | 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.

- [ ] 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)

## 20 / 29 Metric 3. Hydrology.

max 33 pts. | subtotal

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)

on/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:

## 16 / 45 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

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

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 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.) / 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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | NO<br><br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 8b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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 graminoeus 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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>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 cuespitosa* | *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.**





| Site: Southfield Energy Interconnection Facility | Rater(s): L.Sayre | Date: 4/30/2015 |
|---|---|---|

## Metric 1. Wetland Area (size).

max 8 pts. | subtotal: 1 | 1

Select one size class and assign score.

| | |
|---|---|
| | >50 acres (>20.2ha) (8 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) |
| 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) |

on/saturation. 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) |

3e. 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 | | point source (nonstormwater) |
| | tile | X | filling/grading |
| | dike | X | road bed/RR track |
| | weir | | dredging |
| | stormwater input | | 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) |

Check all disturbances observed

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

27 subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating W-15

| Site: | Rater(s): L.Sayre | Date: 4/30/2015 |
|---|---|---|

27 subtotal first page

## 0 (max 10 pts.) 27 (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) |

## -4 (max 20 pts.) 23 (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 |
| | 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 hummucks/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:<br><br>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10 | YES<br><br>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:<br><br>Narrative Rating Nos. 1, 8b, 9b, 9e, 11 | YES<br><br>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<br><br>Narrative Rating No. 5 | YES<br><br>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)<br><br>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<br><br>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<br><br>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form | (NO)<br><br>*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.<br><br>W-16: 0.139 acres onsite<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 2 | (NO)<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 3 | (NO)<br>Go to Question 3 |
| 3 | **Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland? | YES<br>Wetland is a Category 3 wetland<br>Go to Question 4 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 5 | (NO)<br>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<br>Wetland is a Category 1 wetland<br>Go to Question 6 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 7 | (NO)<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 8a | (NO)<br>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<br>*Wetland is a Category* 3 wetland.<br>Go to Question 8b | (NO)<br>*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<br>Wetland should be *evaluated for possible* Category 3 status.<br>Go to Question 9a | (NO)<br>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<br>Go to Question 9b | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Go to Question 9d | NO<br>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<br>Wetland is a Category 3 wetland<br>Go to Question 10 | NO<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Go to Question 10 | NO<br>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<br>Wetland is a Category 3 wetland.<br>Go to Question 11 | (NO)<br>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<br>Wetland should be evaluated for possible Category 3 status<br>Complete Quantitative Rating | (NO)<br>Complete Quantitative Rating |