328.3(a)(1) through (a)(8)]. For example, the document states "Waters located within the 100year floodplain of a traditional navigable water, interstate water, or the territorial seas and waters located more than 1,500 feet and less than 4,000 feet from the lateral limit of an (a)(1) or (a)(3) water may still be determined to have a significant nexus on a case-specific basis under paragraph (a)(8) of the rule and, thus, be a "water of the United States" (EPA 2015).

On June 29, 2015 the new Clean Water Rule was entered into the Federal Register (40 CFR Parts 110, 112, 116, et al. Clean Water Rule: Definition of "waters of the United States"; Final Rule). This report will refer to this rule as "June 29, 2015 WOTUS Rule". This rule includes exact distances mentioned in the May 27, 2015 Technical Support Document as it relates to adjacent waters, including the following:

- Waters within 100 ft. of jurisdictional waters;
- Waters within the 100-year floodplain to a maximum of 1,500 feet from the ordinary high water mark (OHWM);
- Waters within the 100-year floodplain with a SNE to the Traditional Navigable Water (TNW); and
- Waters with a SNE within 4,000 ft. of jurisdictional waters.

On October 9, 2015 the U.S. Court of Appeals for the Sixth Circuit (Court) issued a nationwide stay against the enforcement of the June 29, 2015 WOTUS Rule. The Court stated, "...we conclude that...Justice Kennedy's opinion in *Rapanos* represents the best instruction on the permissible parameters of "waters of the United States" as used in the Clean Water Act, it is far from clear that the new Rule's distance limitations are harmonious with the instruction.

Moreover, the Court stated that the rulemaking process by which the distance limitations were adopted is facially suspect. Petitioners contend the proposed rule that was published, on which interested persons were invited to comment, did not include any proposed distance limitations in its use of terms like "adjacent waters" and "significant nexus." Consequently, petitioners contend, the Final Rule cannot be considered a "logical outgrowth" of the rule proposed, as required to satisfy the notice-and-comment requirements of the APA, 5 U.S.C. Section 553. As a further consequence of this defect, petitioners contend, the record compiled by respondents is devoid of specific scientific support for the distance limitations that were included in the Final Rule. They contend the Rule is therefore not the product of reasoned decision-making and is vulnerable to attack as impermissibly "arbitrary or capricious" under the APA, 5 U.S.C. Section 706(2)."

Until further notice, the June 29, 2015 WOTUS Rule is not in effect. Furthermore, this report does not attempt to include a professional opinion as it relates to the June 29, 2015 WOTUS Rule.

2.2 Waters of the State

"Waters of the State" are within the jurisdiction of the Ohio Environmental Protection Agency (OEPA). They are generally defined as surface and underground water bodies, which extend through or exist wholly in the State of Ohio, which includes, but is not limited to, streams and both isolated and non-isolated wetlands. Private ponds, or any pond, reservoir, or facility built for reduction of pollutants prior to discharge are not included in this definition. In addition to "waters of the U.S.", OEPA also regulates and issues permits for isolated wetland impacts.

OEPA relies on the USACE decision regarding wetland determinations and delineations including whether or not a wetland is isolated or non-isolated.

2.3 Wetlands

Wetlands are a category of "waters of the U.S." for which a specific identification methodology has been developed. As described in detail in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), wetland boundaries are delineated using three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. In addition to the criteria defined in the 1987 Manual, the procedures described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: *Midwest Region* (Environmental Laboratory, 2012) were used to evaluate the Study Area for the presence of wetlands.

2.3.1 Hydrophytic Vegetation

On June 1, 2012, the National Wetland Plant List (NWPL), formerly called the National List of Plant Species that Occur in Wetlands (Reed 1988), went into effect after being released by the U.S. Army Corps of Engineers (USACE) as part of an interagency effort with the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (Lichvar and Kartesz, 2009). The NWPL, along with the information implied by its wetland plant species status ratings, provides general botanical information about wetland plants and is used extensively in wetland delineation, restoration, and mitigation efforts. The NWPL consists of a comprehensive list of wetland plant species that occur within the United States along with their respective wetland indicator statuses by region. An indicator status reflects the likelihood that a particular plant species occurs in a wetland or upland (Lichvar et al. 2012). Definitions of the five indicator categories are presented below.

<u>OBL</u> (Obligate Wetland Plants): almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody) are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface. These plants are of four types: submerged, floating, floating-leaved, and emergent.

FACW (Facultative Wetland Plants): usually occur in wetlands, but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at least seasonally.

FAC (Facultative Plants): occur in wetlands and non-wetlands. These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation, and they have a wide tolerance of soil moisture conditions.

FACU (Facultative Upland Plants): usually occur in non-wetlands, but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.

<u>UPL (Upland Plants):</u> almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

According to the USACE's Midwest Regional Supplement, plants that are rated as FAC, FACW, or OBL are classified as wetland plant species. The percentage of dominant wetland species in each of the four vegetation strata (tree, shrub/sapling, herbaceous, and woody vine) in the sample area determines the hydrophytic (wetland) status of the plant community. Dominant species are chosen independently from each stratum of the community. In general, dominants are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total.

For the purposes of determining dominant plant species, the four vegetation strata are defined. Trees consist of woody species 3 inches or greater in diameter at breast height (DBH). Shrubs and saplings are woody species that are over 1 meter in height and less than 3 inches DBH. Herbaceous species consist of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants less than 1 meter tall. Woody vines consist of vine species greater than 1 meter in height, such as wild grapes.

2.3.2 Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. In general, hydric soils are flooded, ponded, or saturated for a week or more during the growing season when soil temperatures are above 32 degrees Fahrenheit. The anaerobic conditions created by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry, which are used to differentiate hydric from non-hydric soils.

In this report, soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma that are combined in that order to form the color designation. The hue notation of a color indicates its relation to red, yellow, green, blue, and purple; the value notation indicates its lightness, and the chroma notation indicates its strength or departure from a neutral of the same lightness.

The symbol for hue consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation for value consists of numbers from 0 for absolute black, to 10 for absolute white. The notation for chroma consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. A soil described as 10YR 3/1 soil is more gray than a soil designated 10YR 3/6.

2.3.3 Wetland Hydrology

Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Primary indicators of hydrology are inundation, soil saturation in the upper 12 inches of the soil, watermarks, sediment deposits, and drainage patterns. Secondary indicators such as oxidized root channels in the upper 12 inches of the soil, water-stained leaves, local soil survey data, and the FAC-neutral vegetation test are sometimes used to identify hydrology. A primary indicator or two or more secondary indicators are required to establish a positive indication of hydrology.

2.3.4 Wetland Definition Summary

In general, an area must meet all three criteria to be classified as a wetland. In certain problem areas such as seasonal wetlands, which are not wet at all times, or in recently disturbed (atypical) situations, areas may be considered a wetland if only two criteria are met. In special situations, an area that meets the wetland definition may not be within the USACE's jurisdiction due to a specific regulatory exemption.

2.4 Streams, Rivers, Watercourses & Jurisdictional Ditches

With non-tidal waters, in the absence of adjacent wetlands, the extent of the USACE's jurisdiction is defined by the OHWM. USACE regulations define the term "ordinary high water mark" for purposes of the CWA lateral jurisdiction at 33 CFR 328.3(e), which states:

The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Streams, rivers, watercourse, and ditches within the Study Area were evaluated using the above definition and documented. Waterways that did exhibit an OHWM were recorded and evaluated using the Ohio Environmental Protection Agency's Primary Headwater Habitat Evaluation (HHEI) or Qualitative Habitat Evaluation Index (QHEI) methodology. If applicable, the results of the HHEI and/or QHEI are presented in Section 3.2.

2.5 Endangered Species Act

Endangered, Threatened, and rare (ETR) species are protected at both the state and federal level (ORC 1531.25 and 50 CFR 17.11 through 17.12, respectively). The Ohio Revised Code defines "Take" as to harass, hunt, capture, or kill; or attempt to harass, hunt, capture, or kill.

The USFWS, under authority of the Endangered Species Act of 1973 (16 U.S. Code 1531), as amended, has the responsibility for federally listed species. The Ohio Department of Natural Resources (ODNR) has the responsibility for state listed species.

3 Background Information

3.1 Existing Maps

Several sources of information were consulted to identify potential wetlands and wetland soil units on the site. These include the USFWS's *National Wetland Inventory* (NWI), the USGS's *National Hydrography Dataset* (NHD), and the Natural Resources Conservation Service's (NRCS) *Soil Survey* for this county. These maps identify potential wetlands and wetland soil units on the site. The NHD maps are used to portray surface water. The NWI maps were prepared from high altitude photography and in most cases were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified. Additionally, the criteria used in identifying these wetlands were different from those currently used by the USACE. The county soil maps, on the other hand, were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography and many mapping units contain inclusions of other soil types for up to 15 percent of the area of the unit. The USACE does not accept the use of either of these maps to make wetland determinations.

3.1.1 National Wetland Inventory

The NWI map of the area (Figure 4) identified one Riverine, Intermittent Streambed, Seasonally Flooded (R4SBC) wetland feature within the Study Area.

3.1.2 National hydrography Dataset

The NHD dataset (Figure 4) identified one surface water within the Study Area.

3.1.3 Soil Survey

The NRCS Soil Survey identified twelve (12) soil types located within the Study Area (Figure 3). The following table identifies the soil unit symbol, soil unit name, and whether or not the soil type contains components that meet the hydric soil criteria.

Table 3 – 2 Soil Map Units within the F3886 Port Union to Muhlhauser Rebuild Project A	Table 3 – 2
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Symbol	Description					
DaB	Dana silt loam, 2 to 6 percent slopes					
EcF2	Eden silty clay loam, 25 to 50 percent slopes, moderately eroded					
FcA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes					
HoA	Henshaw silt loam, 0 to 2 percent slopes					
MsD2	Miamian-Russell silt loams, 12 to 18 percent slopes, moderately eroded					
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, eroded					
Pa	Patton silty clay loam, 0 to 2 percent slopes					
Ra	Ragsdale silty clay loam, 0 to 2 percent slopes					
RvB2	B2 Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded					
RwB2	B2 Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes, moderately eroded					
Ud	Udorthents					
XeB	Xenia silt loam, Southern Ohio Till Plain, 2 to 6 percent slopes	No				

4 Methodology and Description

4.1 Regulated Waters Investigation

The delineation of regulated waters within the Study Area was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Environmental Laboratory, 2010) as required by current USACE policy.

Prior to the fieldwork, the background information was reviewed to establish the probability and potential location of wetlands on the site. Next, a general reconnaissance of the Study Area was conducted to determine site conditions. The site was then walked with the specific intent of determining wetland boundaries. Data stations were established at locations within and near the wetland areas to document soil characteristics, evidence of hydrology and dominant vegetation. Note that no attempt was made to examine a full soil profile to confirm any soil series designations.

However, when possible, soils were examined to a depth of at least 16 inches to assess soil characteristics and site hydrology. Complete descriptions of typical soil series can be found in the soil survey for these counties.

4.1.1 <u>Site Photographs.</u>

Photographs of the site are located in Appendix A. These photographs are the visual documentation of site conditions at the time of inspection. The photographs are intended to provide representative visual samples of any wetlands or other special features found on the site.

4.2 Technical Descriptions

The project included the review of a 100-ft wide survey corridor approximately 2.74-miles long (the "Study Area"), located in the City of Fairfield and West Chester Township, Butler County, Ohio (see Figure 1). The Study Area consists of approximately 33.4 acres, with an actual project earth disturbance potential of approximately 4.6 acres. The F3886 Port Union to Muhlhauser Rebuild Project initiates at the Duke Energy Muhlhauser Substation located south of Muhlhauser Road, north of W Crescentville Road, and east of Dixie Highway (SR4) (39.308443, -84.486188) and terminates at the Duke Energy Port Union Substation located north of the Rialto Road and Port Union Road intersection (39.326641, -84.450244). The Study Area consisted five habitat types: maintained ROW/oldfield, urban turf/impervious surfaces, agricultural land, emergent wetland, and emergent/scrub-shrub wetland complex.

4.2.1 Data Point and Wetland Descriptions

Pond 1 (0.02-acre within the Study Area)

Pond 1 was a freshwater excavated pond in both hydric and non-hydric soils. It is our best professional judgement based on desktop review and topography that Pond 1 discharges into Stream 6, a tributary to Mill Creek that ultimately flows into the Ohio River, a Traditional Navigable Water (TNW). Due to this connection, Pond 1 should be considered a jurisdictional water of the United States.

Wetland 1 (0.01-acre within the Study Area)

Wetland 1 (W01) was small palustrine emergent wetland (PEM) located along a constructed ditch. W01 discharges into Stream 1, a tributary to Mill Creek which flows into the Ohio River, a "Traditionally Navigable Water." Due to this significant nexus via Stream 1, this wetland should be considered a jurisdictional "water of the U.S.". The ORAM score for W01 was 26.0, categorizing the wetland as a Category 1, or low quality wetland. A complete ORAM field data sheet is located in Appendix D.

Wetland Data Point

Data Point 01 (DP01)

Dominant vegetation in the vicinity of DP01 included dark-green bulrush (*Scirpus atrovirens*, OBL), and common fox sedge (*Carex vulpinoidea*, FACW). In addition, non-dominant vegetation observed included Frank's sedge (*Carex frankii*, OBL), white panicled American-aster (*Symphyotrichum lanceolatum*, FAC), blunt spike-rush (*Eleocharis obtusa*, OBL), giant ironweed (*Vernonia gigantea*, FAC), chufa (*Cyperus esculentus*, FACW), spotted lady's-thumb (*Persicaria maculosa*, FACW), and Fuller's teasel (*Dipsacus fullonum*, FACU). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 3 inches had a matrix soil color of 10YR 4/2 with a texture of silty clay loam. The soil from 3 to 16 inches had a matrix soil color of 10YR 5/4 with concentrations in the matrix at 5 percent, and a texture of silty clay loam. The soil at the data point was mapped as Henshaw silt loam, 0 to 2 percent slopes (HoA), and met the redox depressions (F8) hydric soil criteria. Primary indicators of hydrology included surface water (A1),

saturation (A3), and secondary indicators of hydrology observed included geomorphic position (D2), and the FAC-neutral test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 02 (DP02)

Dominant vegetation in the vicinity of DP02 included red fescue (*Festuca rubra*, FACU). In addition, non-dominant vegetation observed included hairy crab grass (*Digitaria sanguinalis*, FACU). The plants at this data point did not qualify as hydrophytic vegetation criteria. The soil from 0 to 8 inches had a matrix soil color of 10YR 4/2 with a texture of silty clay loam. The soil from 8 to 16 inches had a matrix soil color of 10YR 5/3 with concentrations in the matrix at 2 percent, and a texture of silty clay loam. The soil at the data point was mapped as Henshaw silt loam, 0 to 2 percent slopes (HoA), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 2 (0.14-acre within the Study Area)

Wetlands 2 (W02) was a palustrine emergent and scrub-shrub wetland complex (PEM/PSS). W02 developed along the riparian area of Stream 1, a tributary to Mill Creek which flows into the Ohio River, a "Traditionally Navigable Water." Due to this significant nexus via Stream 1, this wetland should be considered a jurisdictional "water of the U.S.". The ORAM score for W02 was 48.0, categorizing the wetland as a Category 2, or moderate quality wetland. A complete ORAM field data sheet is located in Appendix D.

Wetland Data Point

Data Point 03 (DP03)

Dominant vegetation in the vicinity of DP03 included black willow (*Salix nigra*, OBL), silky dogwood (*Cornus amomum*, FACW), ash-leaf maple (*Acer negundo*, FAC), hybrid cattail (*Typha X glauca*, OBL), Canadian horseweed (*Erigeron canadensis*, FACU), and reed canary grass (*Phalaris arundinacea*, FACW). In addition, non-dominant vegetation observed included New England American-aster (*Symphyotrichum novae-angliae*, FACW), spotted touch-me-not (*Impatiens capensis*, FACW), dark-green bulrush (*Scirpus atrovirens*, OBL), Fuller's teasel (*Dipsacus fullonum*, FACU), flat-top goldentop (*Euthamia graminifolia*, FACW), common fox sedge (*Carex vulpinoidea*, FACW). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/1 with concentrations in the matrix at 5 percent, and a texture of silty clay loam. The soil at the data point was mapped as Udorthents (Ud), and met the redox dark surface (F6), and redox depressions (F8) hydric soil criteria. Primary indicators of hydrology included saturation (A3), and secondary indicators of hydrology observed included crayfish burrows (C8), geomorphic position (D2), and the FAC-neutral test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 04 (DP04)

Dominant vegetation in the vicinity of DP04 included red fescue (*Festuca rubra*, FACU), and Johnson grass (*Sorghum halepense*, FACU). In addition, non-dominant vegetation observed included red clover (*Trifolium pratense*, FACU), Fuller's teasel (*Dipsacus fullonum*, FACU), Canadian thistle (*Cirsium arvense*, FACU), and eastern daisy fleabane (*Erigeron annuus*, FACU). The plants at this data point did not qualify as hydrophytic vegetation criteria. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/1 with a texture of silt loam. The soil at the data point was mapped as Udorthents (Ud), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 3 (0.26-acre within the Study Area)

Wetlands 3 (W03) was a palustrine emergent and scrub-shrub wetland complex (PEM/PSS). W03 developed along the riparian area of Stream 7, a tributary to Mill Creek that flows into the Ohio River, a "Traditionally Navigable Water." Due to this significant nexus via Stream 7, this wetland should be considered a jurisdictional "water of the U.S.". The ORAM score for W03 was 45.0, categorizing the wetland as a Category 2, or moderate quality wetland. A complete ORAM field data sheet is located in Appendix D.

Wetland Data Point

Data Point 05 (DP05)

Dominant vegetation in the vicinity of DP05 included black willow (Salix nigra, OBL), broad-leaf cattail (*Typha latifolia*, OBL), and reed canary grass (*Phalaris arundinacea*, FACW). In addition, non-dominant vegetation observed included green ash (*Fraxinus pennsylvanica*, FACW), spotted touch-me-not (*Impatiens capensis*, FACW), dark-green bulrush (*Scirpus atrovirens*, OBL), white snakeroot (*Ageratina altissima*, FACU), Torrey's rush (*Juncus torreyi*, FACW), and giant ironweed (*Vernonia gigantea*, FAC). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 2 inches had a matrix soil color of 10YR 3/1 with a texture of muck. The soil from 2 to 16 inches had a matrix soil color of 10YR 3/1 with a texture of silty clay loam. The soil at the data point was mapped as Eden silty clay loam, 25 to 50 percent slopes, moderately eroded (EcF2), and met the histic epipedon (A2), and 2 cm muck (A10) hydric soil criteria. Primary indicators of hydrology included surface water (A1), saturation (A3), and secondary indicators of hydrology observed included geomorphic position (D2), and the FAC-neutral test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 06 (DP06)

Dominant vegetation in the vicinity of DP06 included Amur honeysuckle (*Lonicera maackii*, UPL) in multiple strata. In addition, non-dominant vegetation observed included Canadian goldenrod (*Solidago canadensis*, FACU), spotted touch-me-not (*Impatiens capensis*, FACW), eastern woodland sedge (*Carex blanda*, FAC), Japanese honeysuckle (*Lonicera japonica*, FACU), summer grape (*Vitis aestivalis*, FACU), and cress-leaf groundsel (*Packera glabella*, FACW). The plants at this data point did not qualify as hydrophytic vegetation criteria. The soil from 0 to 3 inches had a matrix soil color of 10YR 3/2 with a texture of silty clay loam. The soil at the data point was mapped as Eden silty clay loam, 25 to 50 percent slopes, moderately eroded (EcF2), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

Wetland 4 (0.99-acre within the Study Area)

Wetlands 4 (W04) was a palustrine emergent wetland (PEM). W04 developed along the riparian area of Stream 8, a tributary to Mill Creek which flows into the Ohio River, a "Traditionally Navigable Water." Due to this significant nexus via Stream 8, this wetland should be considered a jurisdictional "water of the U.S.". The ORAM score for W04 is 47.0, categorizing the wetland as a Category 2, or moderate quality wetland. A complete ORAM field data sheet is located in Appendix D.

Wetland Data Point Data Point 07 (DP07)

Dominant vegetation in the vicinity of DP07 included blunt spike-rush (*Eleocharis obtusa*, OBL), and creeping-Jenny (*Lysimachia nummularia*, FACW). In addition, non-dominant vegetation observed included Torrey's rush (*Juncus torreyi*, FACW), common three-seed-mercury (*Acalypha rhomboidea*, FACU), Rufous bulrush (*Scirpus pendulus*, OBL), curly dock (*Rumex crispus*, FAC), dark-green bulrush (*Scirpus atrovirens*, OBL), common fox sedge (*Carex vulpinoidea*, FACW), swamp milkweed (*Asclepias incarnata*, OBL), white panicled American-aster (*Symphyotrichum lanceolatum*, FAC), Frank's sedge (*Carex frankii*, OBL), and cut-leaf water-horehound (*Lycopus americanus*, OBL). The plants at this data point qualified as hydrophytic vegetation. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/1 with concentrations in the matrix at 10 percent, and a texture of sandy clay loam. The soil at the data point was mapped as Patton silty clay loam, 0 to 2 percent slopes (Pa), and met the redox dark surface (F6), and redox depressions (F8) hydric soil criteria. Primary indicators of hydrology included saturation (A3), and secondary indicators of hydrology observed included geomorphic position (D2), and the FAC-neutral test (D5). This data point qualified as a wetland.

Upland Data Point

Data Point 08 (DP08)

Dominant vegetation in the vicinity of DP08 included Canadian goldenrod (*Solidago canadensis*, FACU), and giant ironweed (*Vernonia gigantea*, FAC). In addition, non-dominant vegetation observed included annual ragweed (*Ambrosia artemisiifolia*, FACU), late-flowering Thoroughwort (*Eupatorium serotinum*, FAC), Fuller's teasel (*Dipsacus fullonum*, FACU), Japanese bristle grass (*Setaria faberi*, FACU), yellow sweet-clover (*Melilotus officinalis*, FACU), Virginia-creeper (*Parthenocissus quinquefolia*, FACU), Allegheny blackberry (*Rubus allegheniensis*, FACU), indian-hemp (*Apocynum cannabinum*, FAC), devil's-pitchfork (*Bidens frondosa*, FACW), white avens (*Geum canadense*, FAC), spotted touch-me-not (*Impatiens capensis*, FACW), curly dock (*Rumex crispus*, FAC), and white vervain (*Verbena urticifolia*, FAC). The plants at this data point did not qualify as hydrophytic vegetation criteria. The soil from 0 to 16 inches had a matrix soil color of 10YR 3/1 with a texture of silty clay loam. The soil at the data point was mapped as Patton silty clay loam, 0 to 2 percent slopes (Pa), and did not meet any hydric soil criteria. No indicators of hydrology were observed. This data point did not meet wetland criteria.

4.2.2 Stream Descriptions

Stream 1 (Unnamed Tributary to Mill Creek – 1,598 Linear Feet within the Study Area)

Stream 1 (S01) was a perennial stream that flowed east through the Study Area. The dominant substrates were sand and silt. Ordinary High Water Mark (OHWM) width of S01 was approximately six feet and depth was 2.5 feet. The maximum pool depth observed was approximately twelve inches. S01 flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream should be considered a jurisdictional "water of the United States." The HHEI score was 53 for S01. Complete HHEI field data sheets are located in Appendix D.

Stream 2 (Unnamed Tributary to Mill Creek - 54 Linear Feet within the Study Area)

Stream 2 (S02) was an intermittent stream that flowed south through the Study Area. The dominant substrates were gravel and silt. OHWM width of S02 was approximately ten feet and depth was 1.5 feet. The maximum pool depth observed was approximately four inches. S02flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream

should be considered a jurisdictional "water of the United States." The HHEI score was 66 for S02. Complete HHEI field data sheets are located in Appendix D.

Stream 3 (Unnamed Tributary to Mill Creek – 78 Linear Feet within the Study Area)

Stream 3 (S03) was an intermittent stream that flowed south through the Study Area. The dominant substrates were sand and silt. OHWM width of S03 was approximately five feet and depth was one-foot. The maximum pool depth observed was approximately four inches. S03 flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream should be considered a jurisdictional "water of the United States." The HHEI score was 58 for S03. Complete HHEI field data sheets are located in Appendix D.

Stream 4 (Unnamed Tributary to Mill Creek - 259 Linear Feet within the Study Area)

Stream 4 (S04) was an intermittent stream that flowed east through the Study Area. The dominant substrates were sand and clay/hardpan. OHWM width of S04 was approximately seven feet and depth was 1.5 feet. The maximum pool depth observed was approximately three inches. S04 flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream should be considered a jurisdictional "water of the United States." The HHEI score was 51 for S04. Complete HHEI field data sheets are located in Appendix D.

Stream 5 (Unnamed Tributary to Mill Creek – 113 Linear Feet within the Study Area)

Stream 5 (S05) was an intermittent stream that flowed south through the Study Area. The dominant substrates were gravel and silt. OHWM width of S05 was approximately nine feet and depth was two feet. The maximum pool depth observed was approximately two to three inches. S05 flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream should be considered a jurisdictional "water of the United States." The HHEI score was 61 for S05. Complete HHEI field data sheets are located in Appendix D.

Stream 6 (Unnamed Tributary to Mill Creek - 164 Linear Feet within the Study Area)

Stream 6 (S06) was an intermittent stream that flowed east through the Study Area. The dominant substrates were gravel and sand. OHWM width of S06 was approximately eleven feet and depth was two feet. The maximum pool depth observed was approximately four inches. S06 flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream should be considered a jurisdictional "water of the United States." The HHEI score was 69 for S06. Complete HHEI field data sheets are located in Appendix D.

Stream 7 (Unnamed Tributary to Mill Creek - 246 Linear Feet within the Study Area)

Stream 7 (S07) was an intermittent stream that flowed east through the Study Area. The dominant substrates were sand and clay/hardpan. OHWM width of S07 was approximately five feet and depth was 1.5 feet. The maximum pool depth observed was approximately four inches. S07 flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream should be considered a jurisdictional "water of the United States." The HHEI score was 54 for S07. Complete HHEI field data sheets are located in Appendix D.

Stream 8 (Unnamed Tributary to Mill Creek - 232 Linear Feet within the Study Area)

Stream 8 (S08) was an intermittent stream that flowed northeast through the Study Area. The dominant substrates were silt. OHWM width of S08 was approximately fifteen feet and depth was 2.5 feet. The maximum pool depth observed was approximately ten inches. S08 flows into Mill Creek which is a tributary to the Ohio River, a TNW. Due to this connection, this stream should

be considered a jurisdictional "water of the United States." The HHEI score was 63 for S08. Complete HHEI field data sheets are located in Appendix D.

4.2.3 Non-Jurisdictional Aquatic Feature Descriptions

Non-Jurisdictional Ditches

Numerous non-jurisdictional ditches which lacked bed, bank, and OHWM were identified within the Study Area. These channels were characterized as small to moderate depressions created to channel water. Many of the identified ditches serve as drainage, transporting water from low-lying areas, alongside roadways or fields.

4.3 Endangered, Threatened and Rare Species

The potential for listed species known to occur within Butler County were evaluated based on the habitat observed within the Study Area. In addition, high quality natural communities and significant natural habitat areas were documented if encountered. A walking survey of the Study Area was performed in which all observed Endangered, Threatened and Rare (ETR) species or specific known special habitats were noted. Coordination with the U.S. Fish and Wildlife Service (USFWS) and Ohio Department of Natural Resources (ODNR) Division of Wildlife (DOW) occurred as it related to the Natural Heritage Database search results for the Study Area (Appendix E).

Tables summarizing the results of ETR species as they relate to the habitat observed within the Study Area are included with this report. Correspondence with the ODNR-DOW and the USFWS regarding RTE located within a ½-mile of the Study Area were sent August 28, 2019. The copies of the USFWS and ODNR-DOW response letters are located in Appendix E.

Bat Roost Habitat

The Indiana bat (*Myotis sodalis*, federally endangered) and northern long-eared bat (*Myotis septentrionalis*, federally threatened) are protected under the Endangered Species Act, which is overseen by the USFWS. Typical guidance from USFWS regarding potential bat roost trees is avoidance of cutting trees from April through October. The Study Area was assessed for potential bat roost trees include dead or dying trees (including live shagbark hickories) with at least 10-percent exfoliating bark, a diameter at breast height (DBH) of at least 3 inches, and solar exposure for maternity roost trees (the tree is on a wooded edge or in a canopy gap). If applicable, correspondence from USFWS regarding Indiana bat and northern long-eared bat is included within Appendix E.

The entire Study Area was surveyed to identify potential Indiana bat and northern long-eared bat roost trees. Based on our field inspection and our best professional judgment, there was low to moderate quality suitable bat roost habitat observed within the Study Area.

5 Jurisdictional Analysis

5.1 U.S. Army Corps of Engineers

The USACE has authority over the discharge of fill or dredged material into "waters of the U.S.". This includes authority over any filling, mechanical land clearing, or construction activities that

occur within the boundaries of any "waters of the U.S.". A permit must be obtained from the USACE before any of these activities occur. Permits can be divided into two general categories: Individual Permits and Nationwide Permits.

Individual Permits are required for projects that do not fall into one of the specific Nationwide Permits or are deemed to have significant environmental impacts. These permits are much more difficult to obtain and receive a much higher level of regulatory agency and public scrutiny and may require several months to more than a year for processing.

Nationwide Permits have been developed for projects that meet specific criteria and are deemed to have minimal impact on the aquatic environment. There are currently 52 Nationwide Permits for qualifying activities with 31 Nationwide Permit General Conditions that must be satisfied in order to receive NWP consideration from the USACE.

5.2 Ohio Environmental Protection Agency

The OEPA is responsible for issuing Clean Water Act (CWA) Section 401 permits known as Water Quality Certifications (WQC) for all impacts to "waters of the State of Ohio." This includes authority over any dredging, filling, mechanical land clearing, impoundments or construction activities that occur within the boundaries of any "waters of the State," including those isolated waters not otherwise regulated by the USACE.

The OEPA issues Section 401 WQC in conjunction with the USACE' Section 404 permits. A Section 401 Water Quality Certification must be received before the USACE can issue any Section 404 Department of the Army Permit. The OEPA must issue Individual Section 401 WQC for all Individual Section 404 Permits.

Water quality certification may be granted, without notification to the OEPA, if the project falls under the NWP limitations described above. In order to qualify for this granted certification, all prior-authorized and *de minimis* Ohio State Certification General Limitations and Conditions as published by the OEPA must be satisfied.

The OEPA also requires notification for all impacts to isolated wetlands, which includes a permit application and mitigation plan pursuant to Section 6111 of Ohio Revised Code (ORC).

6 Summary and Conclusion

6.1 Summary

Cardno inspected the F3886 Port Union to Muhlhauser Rebuild Project Study Area on August 13 and 14, 2019. Table 6-1 summarizes the potentially regulated waters delineated within the Study Area.

6.1.1 Endangered, Threatened, and Rare Species

Several sources of information were consulted to further define the potential habitat of listed species that occur within the county of the Study Area. The table presented in Appendix E contains the list of ETR species known to occur within Butler County and their potential to occur within the Study Area based on their habitat requirements and field observations.

Correspondence with the ODNR-DOW and the USFWS regarding RTE species located within a ½-mile of the Study Area were sent August 28, 2019. Copies of the USFWS and ODNR-DOW correspondence letter receipts are located in Appendix E.

6.1.2 Indiana Bat and Northern Long-eared Bat Roost Habitat

The entire Study Area was surveyed to identify potential Indiana bat and northern long-eared Bat roost trees. Based on our field inspection and our best professional judgment, there is potential roost or maternity roost trees suitable for harboring Indiana Bats and Northern Long-eared Bats within the Study Area.

In the event tree clearing activity becomes a work priority within the Study Area, it is recommended that a field inspection be performed within the clearing limits to ensure that potential bat habitat has not developed.

The USFWS is the regulatory authority that makes the final determination as to the status of the Indiana bat and northern long-eared bat in the Study Area. A letter based on the field observations was submitted to the USFWS and ODNR-DOW for concurrence on August 28, 2019. The copies of the USFWS and ODNR-DOW response letters are located in Appendix E.

Feature Name	USGS/ NWI Identified	Feature Class	Regulatory Status ¹	Dimensions (ft)		0.1	QHEI/HHEI/	Linear	Acreage
				Width	Depth	Substrate	ORAM Score	Footage (LF)	(AC)
Pond 1	No	Perennial	Jurisdictional	N/A	N/A	N/A	N/A	N/A	0.02
Wetland 1 (W01)	No	PEM	Jurisdictional	N/A	N/A	N/A	26	N/A	0.01
Wetland 2 (W02)	No	PEM/PSS	Jurisdictional	N/A	N/A	N/A	48	N/A	0.14
Wetland 3 (W03)	No	PEM/PSS	Jurisdictional	N/A	N/A	N/A	45	N/A	0.26
Wetland 4 (W04)	No	PEM	Jurisdictional	N/A	N/A	N/A	47	N/A	0.99
Stream 1 (S01)	Yes	Perennial	Jurisdictional	6	2.5	Sa-Si	53	1,598	0.22
Stream 2 (S02)	No	Intermittent	Jurisdictional	10	1.5	Gr-Si	66	54	0.01
Stream 3 (S03)	No	Intermittent	Jurisdictional	5	1	Sa-Si	58	78	0.01
Stream 4 (S04)	No	Intermittent	Jurisdictional	7	1.5	Sa-Cl	51	259	0.04
Stream 5 (S05)	No	Intermittent	Jurisdictional	9	2	Gr-Si	61	113	0.02
Stream 6 (S06)	No	Intermittent	Jurisdictional	11	2	Gr-Si	69	164	0.04
Stream 7 (S07)	No	Intermittent	Jurisdictional	5	1.5	Gr-Sa	54	246	0.03
Stream 8 (S08)	No	Intermittent	Jurisdictional	15	2.5	Si	63	232	0.05
Totals			Perennial			1.	594 LF		0.22

Table 6-1 Features Identified within the F3886 Port Union to Muhlhauser Rebuild Study Area

	inte	rmittent		1,146 LF	0.20	
48.745 C	-	Pond		~	0.02	
	Wetland	PEM	JD		1.00	
	Wetland	PEM/ PSS	JD	. 	0.40	

¹ Regulatory Status is based on our "professional judgment" and experience; however the USACE makes the final determination.

6.2 Conclusion

There was one (1) pond, four (4) wetlands, and eight (8) streams identified within the Study Area.

While this report represents our best professional judgment based on our knowledge and experience, it is important to note that the Huntington District of the USACE has final discretionary authority over all jurisdictional determinations of 'waters of the U.S.' including wetlands under Section 404 of the CWA in this region.

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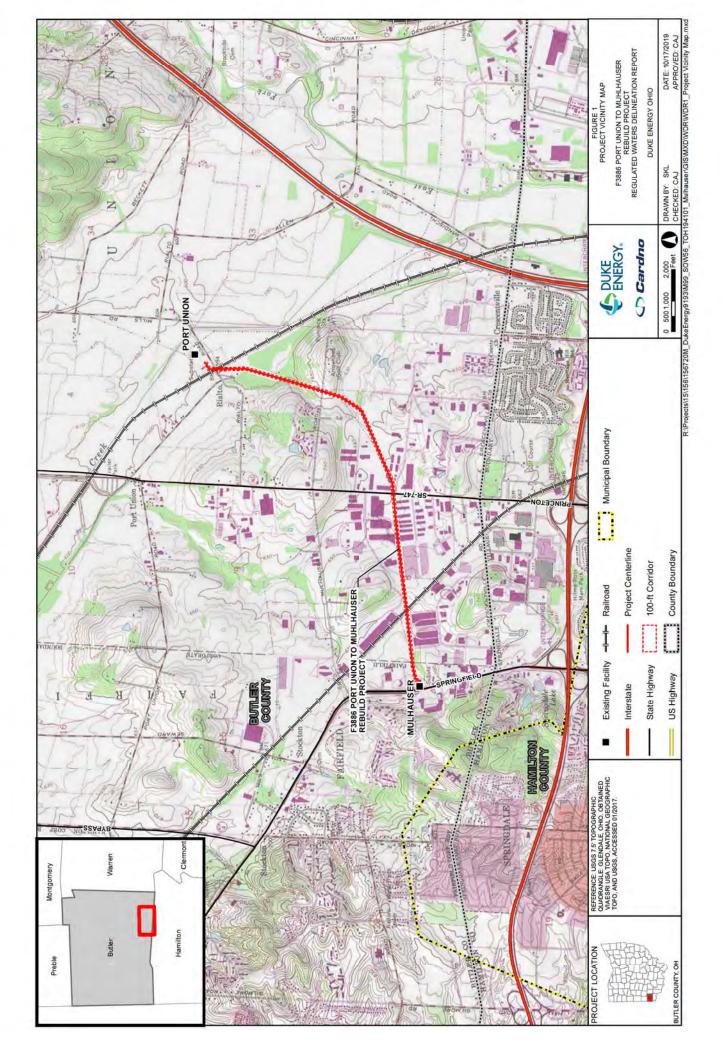
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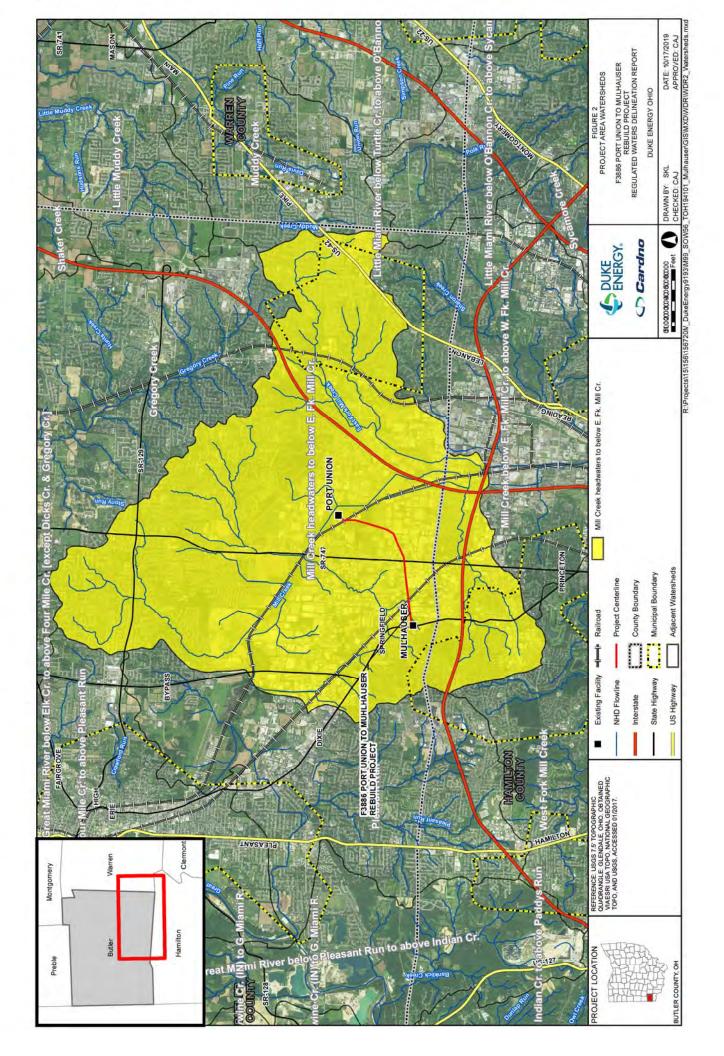
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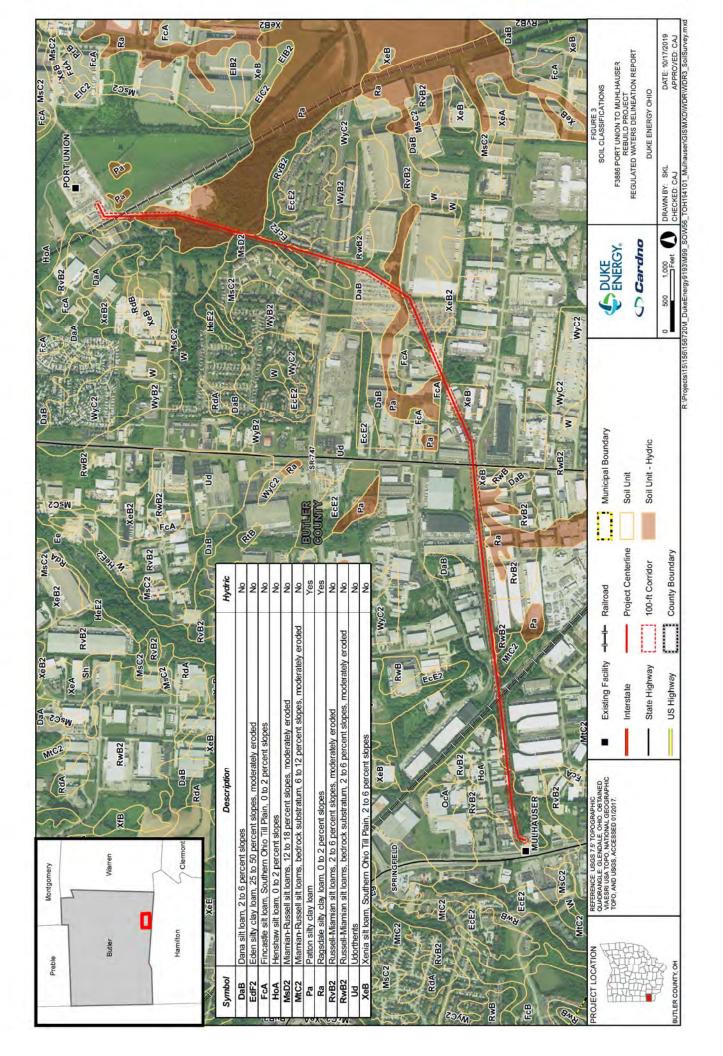
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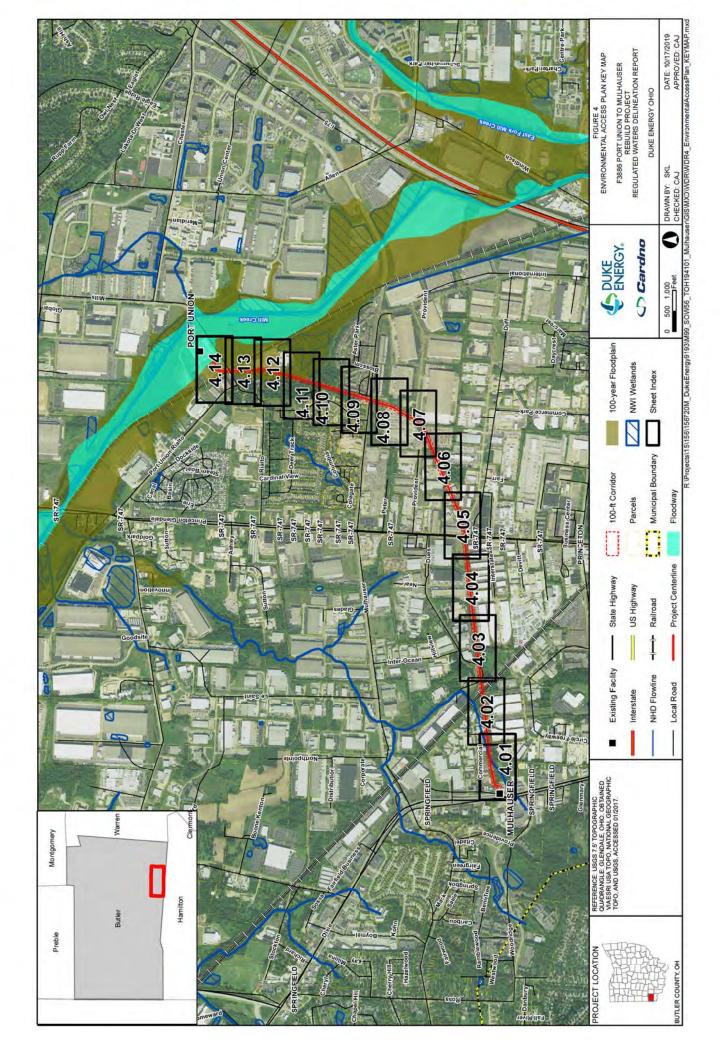
DUKE ENERGY OHIO F3886 PORT UNION TO MUHLHAUSER REBUILD PROJECT WETLAND DELINEATION REPORT

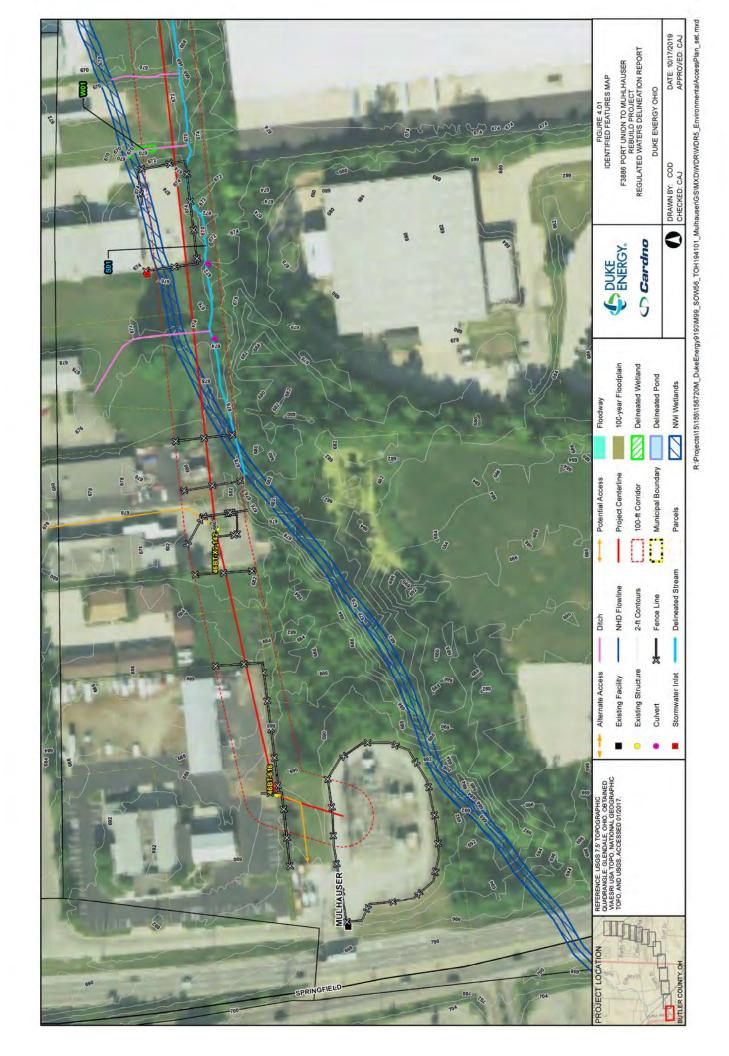
FIGURES

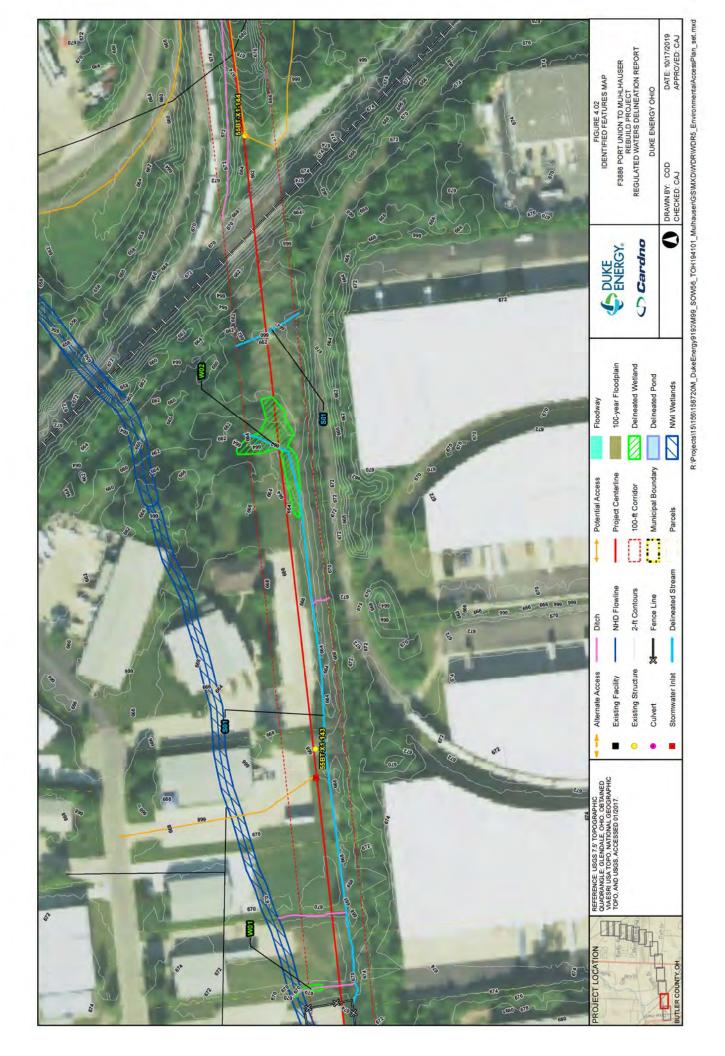


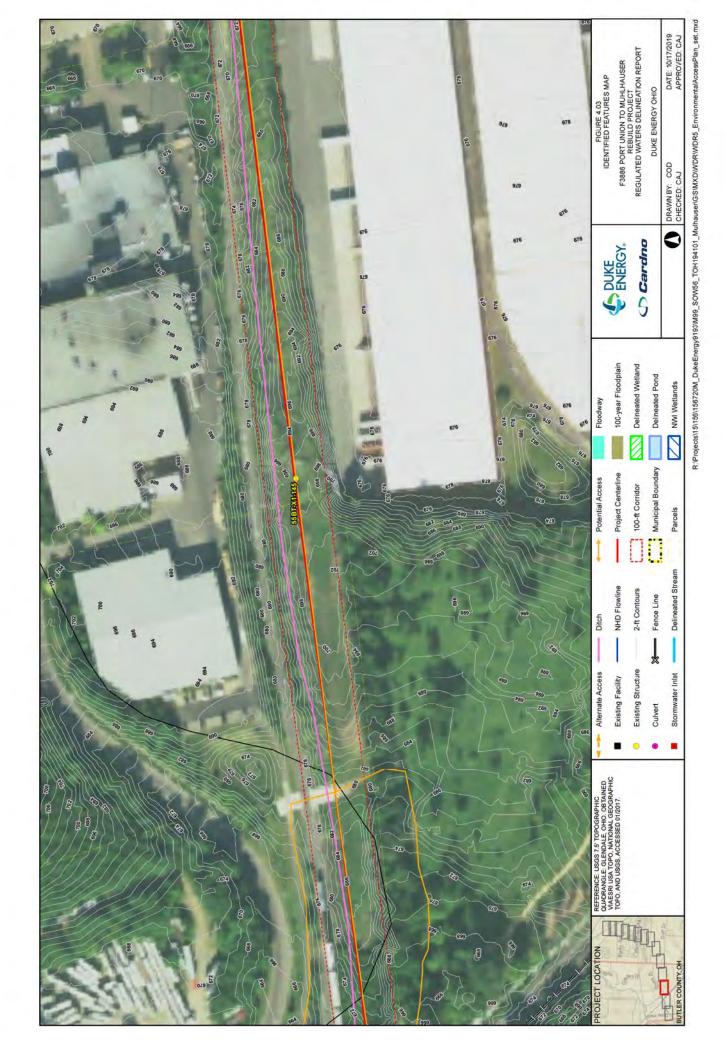




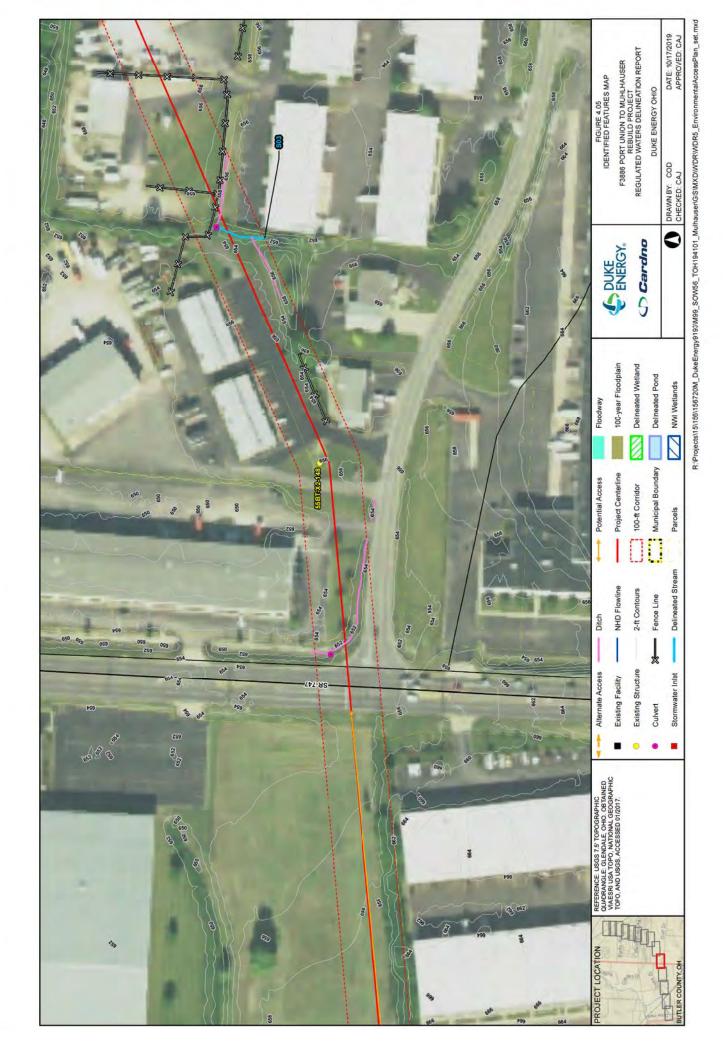


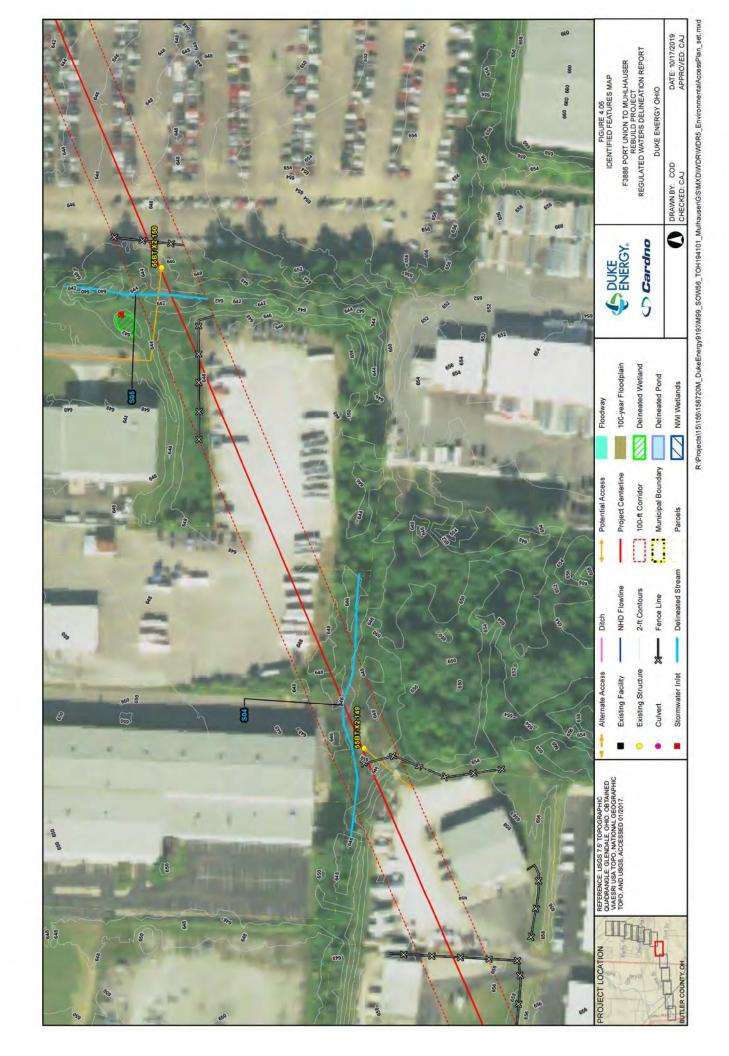


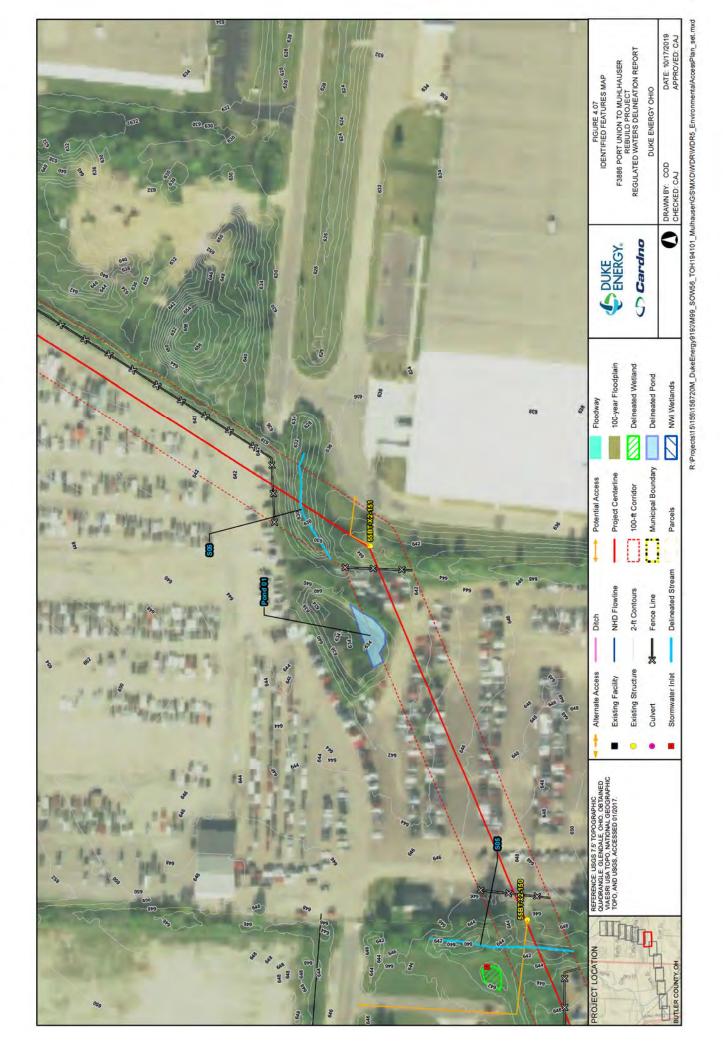


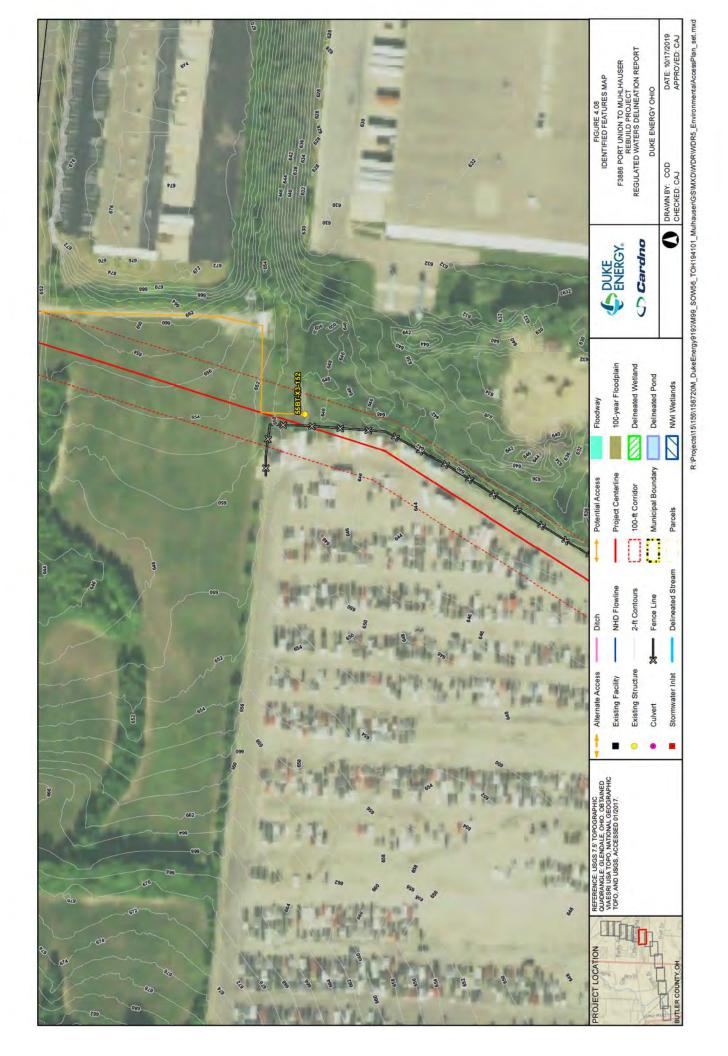


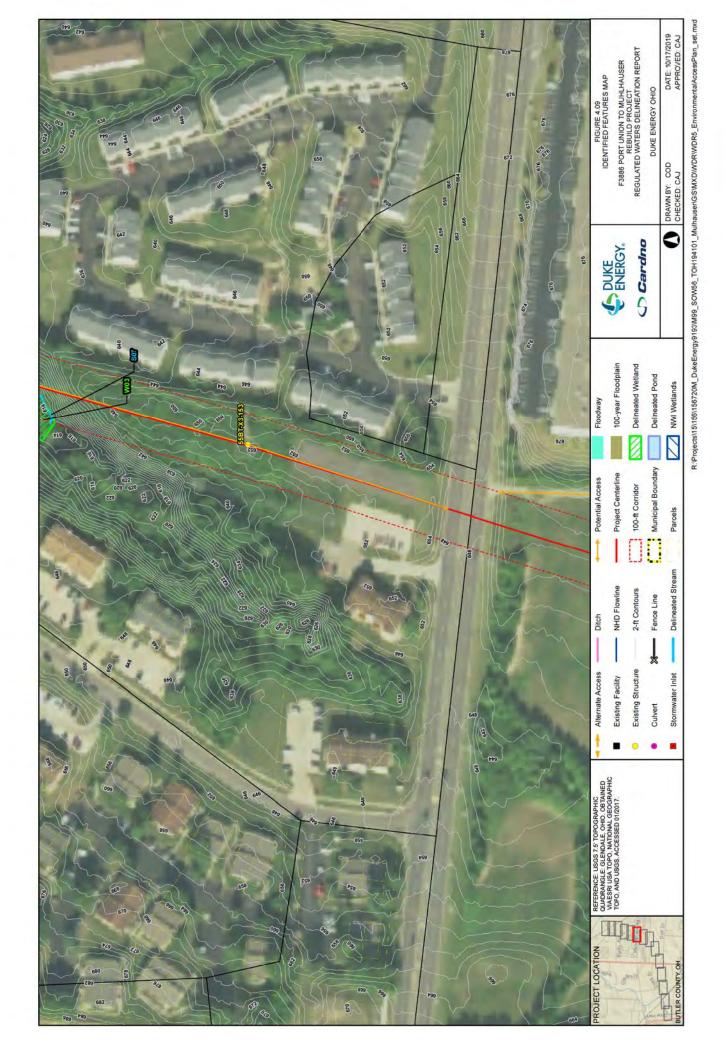


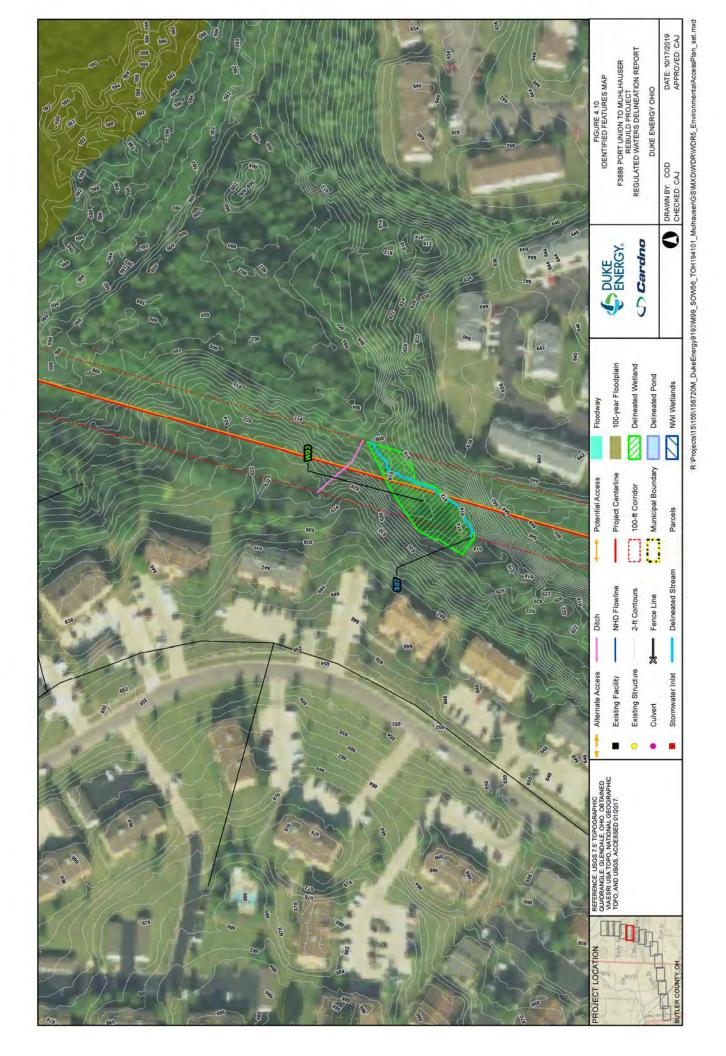


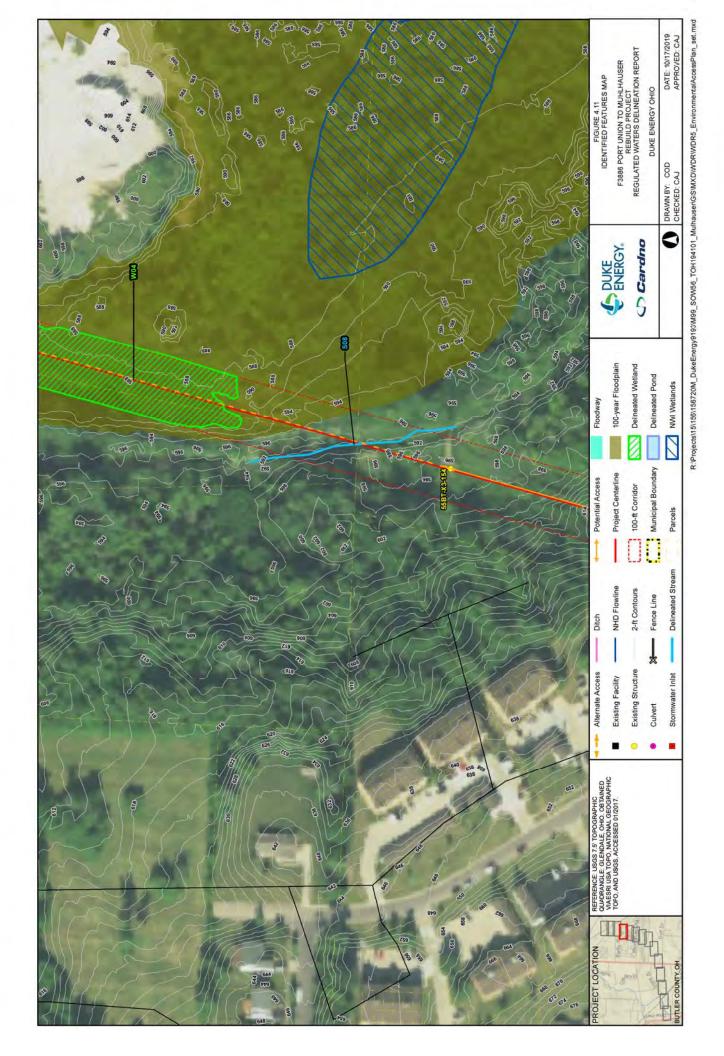


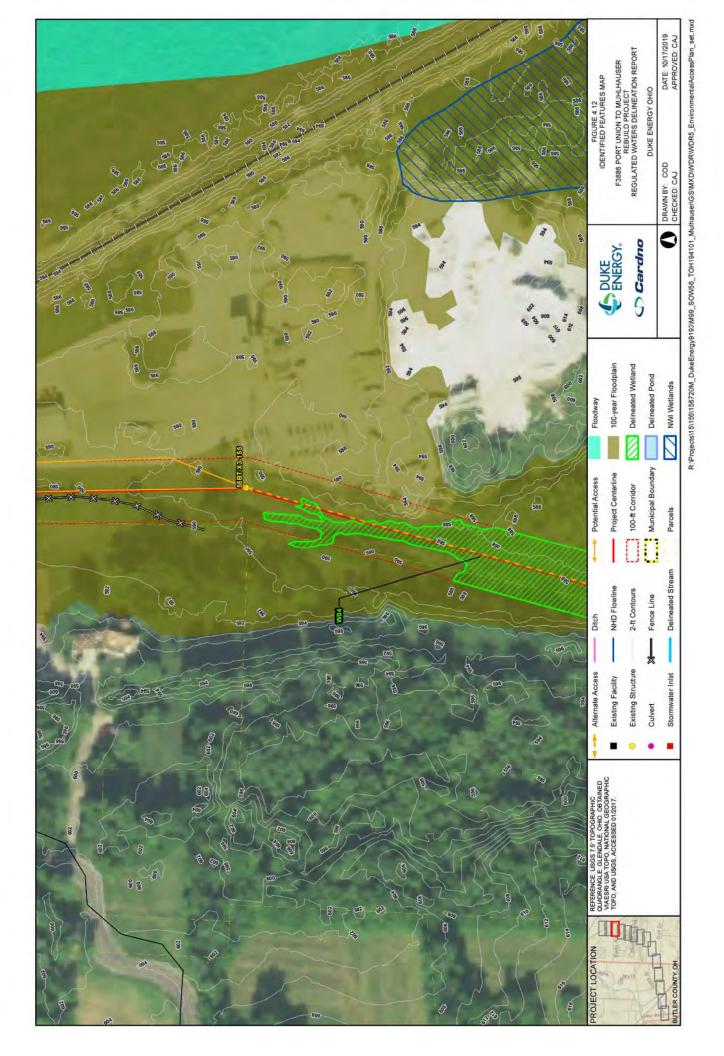


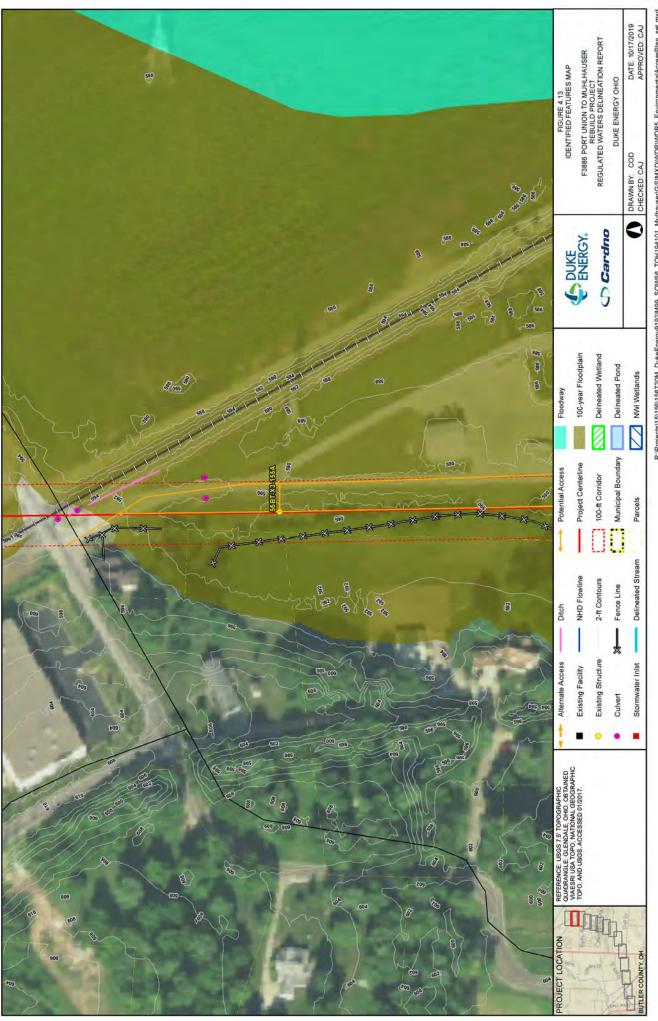




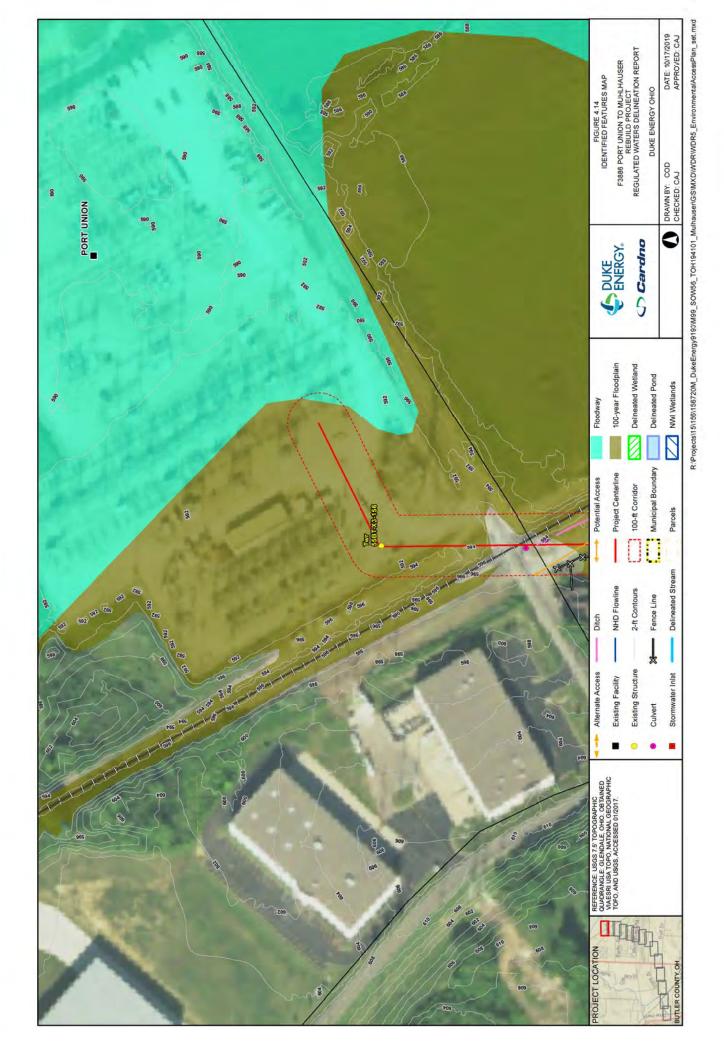








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DUKE ENERGY OHIO F3886 PORT UNION TO MUHLHAUSER REBUILD PROJECT WETLAND DELINEATION REPORT

APPENDIX



SITE PHOTOGRAPHS





City of Fairfield and West Chester Township, Butler County, Ohio F3886 Port Union to Muhlhauser Rebuild Project Regulated Waters Delineation Report Duke Energy Ohio

Photo 4: Stream 4, View Facing Upstream, 08/13/2019.

Cardno Shaping the Future

Photo 3: Stream 3, View Facing Upstream, 08/13/2019.

Site Photographs



Photo 5: Stream 5, View Facing Upstream, 08/14/2019.





Photo 6: Stream 6, View Facing Upstream, 08/14/2019.



Photo 8: Stream 8, View Facing Upstream, 08/13/2019.

Shaping the Future

City of Fairfield and West Chester Township, Butler County, Ohio

Duke Energy Ohio

F3886 Port Union to Muhlhauser Rebuild Project Regulated Waters Delineation Report

Photo 7: Stream 7, View Facing Upstream, 08/13/2019.

Site Photographs



Photo 11: Overview of Wetland 3, View Facing South, 08/14/2019.

Shaping the Future F3886 Port Union to Muhlhauser Rebuild Project Regulated Waters Delineation Report Duke Energy Ohio

City of Fairfield and West Chester Township, Butler County, Ohio

Photo 12: Overview of Wetland 4, View Facing South, 08/14/2019.

Site Photographs

DUKE ENERGY OHIO F3886 PORT UNION TO MUHLHAUSER REBUILD PROJECT WETLAND DELINEATION REPORT

APPENDIX



WETLAND DELINEATION DATA SHEETS – MIDWEST



roject/Site:	F3886 Port Union to	Mulhause	er Rebuild	Project						City/County	: Fairfield/Butler	41	Sampling Date: 8/13/2019
pplicant/Owner:	Duke Energy Ohio									State	: OH	Sampling Point:	DP01
vestigator(s):	Cori Jansing and K	aitlin Hillier									Section, Townsh	ip, Range: S8, T2E, R2N	
ndform (hillslope	e, terrace, etc.):		Stream	Terrace	-						Loca	al relief (concave, convex, none	: concave
ope (%):	0%	Lat	t:	-		39.30925	i8		_	Long:		84.482372	Datum: NAD83 UTM16N
oil Map Unit Nam	e: Henshaw silt loam,	0 to 2 perc	ent slopes	(HoA)								NWI clas	sification: none
re climatic / hydro	ologic conditions on th	e site typic	al for this t	time of ye	ar?					Yes	X No	(If no, explain in Remark	s.)
re Vegetation	N	, Soil	1	N	, or Hyd	rology	N	sig	nificantly dist	urbed?	Are "Norm	al Circumstances" present?	Yes X No
re Vegetation	N	, Soil	1	N	, or Hyd	rology	N	na	turally problem	natic?	(If needed	, explain any answers in Remar	ks.)
UMMARY OF	FINDINGS Att	ach site	map sh	owing	samplin	a point	location	ns. trai	nsects. im	ortant featu	res. etc.		
	getation Present?	_			Yes	x		No			Sampled Ar	·ea	
lydric Soil Pres					Yes	x		No			n a Wetland?		x No
	logy Present?				Yes	x		No					
Remarks:													
EGETATION	Use scientific	names o	of plants	5.					Absoluto	Deminent	Indicator	I	
ee Stratum (Plot	t size: 30' radius)								Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test workshee	t
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5.								100	-	· · · · · ·		Total Number of Dominant	
										= Total Cover	_	Species Across All Strata:	2 (B)
apling/Shrub Stra	atum (Plot size: 15' ra	dius)										Percent of Dominant Species	0
l												That Are OBL, FACW, or FA	C: 100% (A/B)
2.												1	
3.												and the second second	
4										<u> </u>		Prevalence Index workshee	t:
5.											2		
										= Total Cover		Total % Cover of:	Multiply by:
	A second Printericky											That Are OBL, FACW, or FAC	
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 Carex vulpinoid Carex frankii 	uea			_					15%	No	OBL	FAC species 20% FACU species 5%	
	um lanceolatum								15%	No	FAC	UPL species	x5 =
Eleocharis obtu									10%	No	OBL	Column Totals: 1.3	
6. Vernonia gigan									5%	No	FAC		
. Cyperus escule									5%	No	FACW	Prevalence Index	= B/A = 1.63
Persicaria mac									5%	No	FACW		
). Dipsacus fullor	num								5%	No	FACU		
												Hydrophytic Vegetation Inc	licators:
L.								1.1					
2												X 1-Rapid Test for Hyd	Irophytic Vegetation
3.												X 2-Dominance Test is	
ł												X 3-Prevalence Index	is ≤3.0 ¹
5.												4-Morphological Ada	aptations ¹ (Provide supporting
S.												the second s	on a separate sheet)
·										1	-	Problematic Hydrop	hytic Vegetation ¹ (Explain)
3.												Second and the	
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oody Vine Stratu	um (Plot size: 30' rad	us)										Hydrophytic	
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Color (moist) % Type1 Loc? Texture Remarks 0-3* 10YR 4/2 100		e to the depth need	ed to document the indicate	or or confirm the ab	sence of ind	licators.)	
0-3* 10YR 4/2 100 3-16* 10YR 5/8 5 C M Sky Clay Loan ************************************	Depth Matr						
3-16* 10YR 5/4 95 10YR 5/6 5 C M Sity Clay Loan "Type:		t) %	Color (moist)	% Type'	Loc	Texture	Remarks
Type: C=Concentration, D=Deplotion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix. Type: C=Concentration, D=Deplotion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix. Test Indicators of Mytors Solits: Item Managenes Matrix (S4) Item Managenes Masses (F12) Haitso (A1) Sandy Redox (S5) Very Shallow Dark Surface (F2) Black Haits (A3) Dark Surface (S7) Other (Explain in Remarks) Stratified Layers (A5) Loamy Matrix (Mineral (F1)) Depleted Dark Surface (F6) *The hydric soli indicators have been updated to comply with the Field Indicators of Hydric Solits is on Muck Mineral (S1) Depleted Dark Surface (F7) comply with the Field Indicators of Hydric Solits is on Muck Mineral (S1) Depleted Dark Surface (F7) omply with the Field Indicators of Hydric Solits is on Muck Mineral (S1) Depleted Dark Surface (F7) omply with the Field Indicators of Hydric Solits is on Muck Mineral (S1) Depleted Dark Surface (F7) omply with the Field Indicators of Hydric Solits is on Muck Mineral (S1) Depleted Dark Surface (F7) omply with the Field Indicators of Hydric Solits is on Muck Mineral (S1) The Hydric Solits is on Muck Mineral (S1) Depleted Dark Surface (F8) The Hydric Solits is on Muck Mineral (S1) Depleted Dark Surface (F7) ommly Muck Mineral (S1) Depleted Dark Surface (S7) Solita Solita (S1) Solita Solita (S1) Sol					Sil	ty Clay Loam	
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Sampling Point:

rdir Goll Indicators ¹ :	0-8° 10YR 4/2 100	Silty Clay Loam A Silty Clay Loam Solution Indicators of Hydric Soils Indicators of Hydric Soils In the United States , Version 8.0, 2016.
B-16* 10YR 5/3 98 10YR 4/6 2 C M Stty Cay Loam "Type: C-Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains." "Coation: PL=Pore Lining, M=Matrix, "Type: C-Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains." "Coation: PL=Pore Lining, M=Matrix, "Histic Epipedon (A2) Sandy Reduces (S5) Loro-Mangenese Masses (F12) Histic Epipedon (A2) Sandy Reduces (S5) Other (Explain in Remarks) Hydrogon Suindles (A4) Dark, Surface (S7) Other (Explain in Remarks) Stratified Layers (A5) Loamy Mucky Mineral (F1) Earny Gleyde Matrix (F2) Depleted Bolow Dark Surface (A12) Redox Dark Surface (F7) comply with the Field Indicators have been updated to comply with the Field Indicators of Hydric Soils in the United States, Version 8.0, 2016. Stratifict Layer (for baserwed): Type:	8-16" 10YR 5/3 98 10YR 4/6 2 C 1 "Type: 2 C 1 2 C 1 "Type: C C 1 2 C 1 Histosol (A1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) 3 3 3 2 C 1 Histosol (A1) Sandy Gleyed Matrix (S4) Sandy Redox (S5) 3 3 3 3 1	A Silty Clay Loam Silty Clay Loam
Type: C-Concentration. D=Depideion, RM=Reduced Matrix, CS=Covered or Costed Sand Grains. *1_costator, PL=Pore Lining, M=Matrix, Test Indicators of Mytoris Solits: Type: C-Concentration. D=Depideion, RM=Reduced Matrix, CS=Covered or Costed Sand Grains. *1_costators: Test Indicators of Mytoris Solits: Inor-Manganese Masses (F12) Helatic Epipedon (A2) Sandy Redox (S5) User Shallew Dark Surface (T22) Black Helis (A3) Dark Surface (S7) Define (Explain in Remarks) Stratified Layers (A5) Loarny Mecky Mineral (F1) Loarny Mecky Mineral (F1) 2 orn Muck (A10) Depidete Black Kelis (F2) orn Muck Mineral (S1) Depidete Black Kelis (CA3) Redox Dark Surface (F7) som Muck Mineral (S1) S orn Muck Metar Oreat (S3) Redox Dark Surface (F7) som Muck Mineral (S1) Depidete Black Kelis (CA3) Redox Dark Surface (F7) som Muck Mineral (S1) S orn Muck Metar Oreat (S3) Redox Dark Surface (F8) in the United States. Version 8.0. 2016. Startise Utark (A1) User (F1) Surface Solit Gasters. Mode Surface Solit Grack (A1) Dark Surface (C1) Dark Surface (C1) Dark Surface (C2) YUBCLOCY Yeter (A1) User (F1) Surface Value (A1) Dark Surface (C2) Not	¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² L hydric Soil Indicators ³ : Histosol (A1) Sandy Gleyed Matrix (S4) Histosol (A1) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Dark Surface (S7) Stratified Layers (A5) Loamy Mucky Mineral (F1) 2 cm Muck (A10) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) 5 cm Mucky Peat or Peat (S3) Redox Depressions (F8) testrictive Layer (if observed): Type: Type: Depth (inches): wemarks: Hy Primary Indicators: Hy Primary Indicators (minimum of one is required: check all that apply) Surface Water (A1) Water-Stained Leaves (B9) High Water Table (A2) Aquatic Fauna (B13) Saturation (A3) True Aquatic Plants (B14) Water Marks (B1) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Drift Depos	ocation: PL=Pore Lining, M=Matrix. Test Indicators of Hydric Soils:
yteris Soil Indicators?:	ydric Soil Indicators ³ :	Test Indicators of Hydric Soils: Iron-Manganese Masses (F12) Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.
ydric Soil Indicators?:	ydric Soil Indicators ³ :	Test Indicators of Hydric Soils: Iron-Manganese Masses (F12) Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.
yurie Soil Indicators?:	ydric Soil Indicators ³ :	Test Indicators of Hydric Soils: Iron-Manganese Masses (F12) Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.
typerie Soil Indicators?:	Hydric Soil Indicators ³ :	Test Indicators of Hydric Soils: Iron-Manganese Masses (F12) Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.
typerie Soil Indicators?: Test Indicators of Hydric Soils: Histos [papedn (A2) Sandy Glayed Matrix (64) trom-Manganese Masses (F12) Black Histis (A3) Stripped Matrix (65) Very Shallow Dark Surface (F22) Black Histis (A3) Dark Surface (S7) Common Margenese Masses (F12) Stratified Layers (A5) Loamy Mucky Mineral (F1) Deploted Matrix (F2) Deploted Below Dark Surface (A11) Deploted Dark Surface (F7) comply with the <i>Field Indicators of Hydric Soil</i> Standy Mucky Mineral (S1) Deploted Dark Surface (F7) comply with the <i>Field Indicators of Hydric Soil</i> S and Wucky Mineral (S1) Deploted Dark Surface (F7) comply with the <i>Field Indicators of Hydric Soil</i> S on Mucky Mineral (S1) Deploted Dark Surface (F7) comply with the <i>Field Indicators of Hydric Soil</i> Type: Depth (inches): Hydric Soil Present? Yes	Hydric Soil Indicators ³ :	Test Indicators of Hydric Soils: Iron-Manganese Masses (F12) Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.
typerie Soil Indicators?:	Hydric Soil Indicators ³ :	Test Indicators of Hydric Soils: Iron-Manganese Masses (F12) Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils in the United States</i> , Version 8.0, 2016.
Histosol (A1)	Histosol (A1) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Dark Surface (S7) Stratified Layers (A5) Loamy Mucky Mineral (F1) 2 cm Muck (A10) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) 5 cm Mucky Peat or Peat (S3) Redox Depressions (F8) Vestrictive Layer (if observed): Type: Type:	Iron-Manganese Masses (F12) Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils</i> <i>in the United States</i> , Version 8.0, 2016.
Histic Epipedon (A2) Sandy Redox (S5) Very Shallow Dark Surface (F2) Black Histic (A3) Stripped Matrix (S6) Other (Explain in Remarks) Hydrogen Sulfide (A4) Dark Surface (S7) Other (Explain in Remarks) Straffide Layers (A5) Leamy Mudry Mineral (F1) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Redox Dark Surface (F6) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils</i> S om Mudxy Peat or Peat (S3) Redox Depressions (F8) in the United States, Version 8.0. 2016. testrictive Layer (if observed): Type:	Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Dark Surface (S7) Stratified Layers (A5) Loamy Mucky Mineral (F1) 2 cm Muck (A10) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) 5 cm Mucky Peat or Peat (S3) Redox Depressions (F8) Restrictive Layer (if observed): Type: Type:	Very Shallow Dark Surface (F22) Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils</i> <i>in the United States</i> , Version 8.0, 2016.
Black Histic (A3) Stripped Matrix (S6) Other (Explain in Remarks) Hydrogen Sulfide (A4) Dark Surface (S7) Commy Mucky Mineral (F1) 2 cm Muck (A10) Loamy Mucky Mineral (F1) Commy Mucky Mineral (F1) 2 m Muck (A10) Depleted Matrix (F2) Depleted Matrix (F2) Depleted Bow Dark Surface (A12) Redox Dark Surface (F7) comply with the Field Indicators at Hydric Salls 5 cm Muck (Near OP eat OP eat (S3) Redox Depressions (F8) in the United States, Version 8.0, 2016. Etertrictive Layer (if observed): Type:	Black Histic (A3) Stripped Matrix (S6) Hydrogen Sulfide (A4) Dark Surface (S7) Stratified Layers (A5) Loamy Mucky Mineral (F1) 2 cm Muck (A10) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) 5 cm Mucky Peat or Peat (S3) Redox Depressions (F8) Redox Depressions (F8) Redox Depressions (F8) Remarks: Hy Popth (inches): Hy marks: Hy Primary Indicators (minimum of one is required: check all that apply) Surface Water (A1) Surface Water (A1) Water-Stained Leaves (B9) High Water Table (A2) Aquatic Fauna (B13) Saturation (A3) True Aquatic Plants (B14) Water Marks (B1) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Drift Deposits (B3) Presence of Reduced Iron (C4)	Other (Explain in Remarks) ³ The hydric soil indicators have been updated to comply with the <i>Field Indicators of Hydric Soils</i> <i>in the United States</i> , Version 8.0, 2016.
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Sampling Point:

epth	Matrix	%	Re Color (moint)	0/	Type ¹	Loc ²	Tautura	Demerica
inches)	Color (moist)		Color (moist)	%			Texture	Remarks
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	oncentration, D=Deple	tion, RM=Reduce	d Matrix, CS=Cover	ed or Coated S	Sand Grains.		on: PL=Pore Lining, M= Indicators of Hydric S	
Histoso			Sandy Gley	ed Matrix (S4)		March 2010 Tarrey Cash 200	se Masses (F12)
	pipedon (A2)		Sandy Red					Dark Surface (F22)
	listic (A3)		Stripped Ma				Other (Explain	
and the second second	en Sulfide (A4)		Dark Surfac				and the second	
	d Layers (A5)		Loamy Muc	ky Mineral (F	1)			
2 cm M	uck (A10)		Loamy Gle	ed Matrix (F2)			
Deplete	d Below Dark Surface	(A11)	Depleted M	atrix (F3)			2000 - DOM - TOM	
	ark Surface (A12)			Surface (F6)				ators have been updated to
	Mucky Mineral (S1)			ark Surface (F	7)			ield Indicators of Hydric Soils
5 cm M	ucky Peat or Peat (S3)		X Redox Dep	ressions (F8)			in the United State	es, Version 8.0, 2016.
Restrictive L	ayer (if observed):							
Type:								
						1.1.1		
						Hydric	Soil Present?	Yes X No
Remarks: HYDROLO Wetland Hyd	DGY trology Indicators:	e is required: chec	k all that apply)			Hydric :		
Remarks: HYDROL(Wetland Hyd Primary Indid	DGY trology Indicators: cators (minimum of one	e is required: chec		ned Leaves (B	9)	Hydric :		s (minimum of two required)
Remarks: HYDROL(Metland Hyd Primary Indic Surface	DGY Irology Indicators: cators (minimum of one Water (A1)	e is required: chec	Water-Stair		9)	Hydric	Secondary Indicators	s (minimum of two required) racks (B6)
Remarks: HYDROL(Wetland Hyd Primary Indic Surface High W	DGY trology Indicators: cators (minimum of one	e is required: chec	Water-Stair			Hydric	Secondary Indicators Surface Soil Cr Drainage Patte	s (minimum of two required) racks (B6)
Aemarks: HYDROL(Wetland Hyd Primary Indic Surface High W X Saturati	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2)	e is required: chec	Water-Stair Aquatic Fat True Aquat	una (B13))	Hydric	Secondary Indicators Surface Soil Cr Drainage Patte	e (minimum of two required) racks (B6) erns (B10) ater Table (C2)
Aemarks: HYDROL(Wetland Hyd Primary Indic Surface High W X Saturati Water M	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3)	e is required: chec	Water-Stain Aquatic Fau True Aquat Hydrogen S	una (B13) ic Plants (B14) 01)		Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wi X Crayfish Burrow	e (minimum of two required) racks (B6) erns (B10) ater Table (C2)
Remarks: TYDROL(Wetland Hyd Primary Indic Surface High W X Saturati Water M Sedime	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1)	e is required: chec	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R	una (B13) ic Plants (B14) Sulfide Odor (C) C1) n Living Root		Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visit	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8)
Remarks: TYDROLO Wetland Hyd Primary Indid Surface High W X Saturati Water M Sedime Drift De Algal M	DGY ators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) aposits (B3) at or Crust (B4)	e is required: chec	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror	una (B13) ic Plants (B14) Sulfide Odor (C nizospheres o f Reduced Iron Reduction in) C1) n Living Root n (C4)	ts (C3)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visil Stunted or Stre X Geomorphic Po	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2)
Remarks: TYDROLO Wetland Hyd Primary Indid Surface High W X Saturati Water M Sedime Drift De Algal M	DGY trology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) sposits (B3)	e is required: chec	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror	una (B13) ic Plants (B14) Sulfide Odor (C nizospheres o f Reduced Iron) C1) n Living Root n (C4)	ts (C3)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visil Stunted or Stree	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2)
Algal M Inundat	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In	nagery (B7)	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9)) n Living Root n (C4) Tilled Soils (ts (C3)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visil Stunted or Stre X Geomorphic Po	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2)
HYDROL(Metland Hyc Primary Indic Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5)	nagery (B7)	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V	una (B13) ic Plants (B14) Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7)) n Living Root n (C4) Tilled Soils (ts (C3)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visil Stunted or Stre X Geomorphic Po	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2)
HYDROL(Metland Hyc Primary Indic Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat	DGY ators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave	nagery (B7)	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9)) n Living Root n (C4) Tilled Soils (ts (C3)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visil Stunted or Stre X Geomorphic Po	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2)
Remarks: HYDROLO Wetland Hyd Primary India Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat Sparsel Field Observ Surface Wate	DGY Trology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ty Vegetated Concave vations: er Present?	nagery (B7) Surface (B8) Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): <u>N/A</u>) n Living Root n (C4) Tilled Soils (ts (C3)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visil Stunted or Stre X Geomorphic Po	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2)
Remarks: HYDROLO Wetland Hyd Primary Indic Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat Sparsel Field Observ Surface Wate	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave Vations: er Present? Present?	nagery (B7) Surface (B8) Yes No Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl C Depth (inche	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): <u>N/A</u>) C1) n Living Roof n (C4) Tilled Soils (s)	ts (C3) C6)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season W X Crayfish Burrov Saturation Visil Stunted or Stree X Geomorphic Po X FAC-Neutral To	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) est (D5)
Algal M Iron De Iron	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave Vations: er Present? Present?	nagery (B7) Surface (B8) Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): <u>N/A</u>) C1) n Living Roof n (C4) Tilled Soils (s)	ts (C3) C6)	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season Wa X Crayfish Burrov Saturation Visil Stunted or Stre X Geomorphic Po	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) position (D2)
Itemarks: Itemarks:	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave Vations: er Present? Present? resent? billary fringe)	nagery (B7) Surface (B8) Yes No> Yes No> Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl C Depth (inche Depth (inche	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): N/A s): N/A s): N/A s): 2") C1) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season W X Crayfish Burrov Saturation Visil Stunted or Stree X Geomorphic Po X FAC-Neutral To	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) est (D5)
Algal M Field Observ Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat Sparsel Field Observ Surface Water Table Saturation Profination Control Control Control Control Control Control Control Control Control Control C	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave Vations: er Present? Present?	nagery (B7) Surface (B8) Yes No> Yes No> Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl C Depth (inche Depth (inche	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): N/A s): N/A s): N/A s): 2") C1) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season W X Crayfish Burrov Saturation Visil Stunted or Stree X Geomorphic Po X FAC-Neutral To	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) est (D5)
Remarks: HYDROL(Netland Hyd Primary Indic Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat Sparsel Field Observ Surface Wate Saturation Pri (includes cap Describe Re	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave Vations: er Present? Present? resent? billary fringe)	nagery (B7) Surface (B8) Yes No> Yes No> Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl C Depth (inche Depth (inche	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): N/A s): N/A s): N/A s): 2") C1) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season W X Crayfish Burrov Saturation Visil Stunted or Stree X Geomorphic Po X FAC-Neutral To	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) est (D5)
Remarks: HYDROLO Wetland Hyc Primary Indic Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat Sparsel Field Observ Surface Water Table Saturation Pri (includes cap	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave Vations: er Present? Present? resent? billary fringe)	nagery (B7) Surface (B8) Yes No> Yes No> Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl C Depth (inche Depth (inche	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): N/A s): N/A s): N/A s): 2") C1) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season W X Crayfish Burrov Saturation Visil Stunted or Stree X Geomorphic Po X FAC-Neutral To	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) est (D5)
Remarks: HYDROL(Netland Hyd Primary Indic Surface High W X Saturati Water M Sedime Drift De Algal M Iron De Inundat Sparsel Field Observ Surface Wate Saturation Pri (includes cap Describe Re	DGY Irology Indicators: cators (minimum of one Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial In ly Vegetated Concave Vations: er Present? Present? resent? billary fringe)	nagery (B7) Surface (B8) Yes No> Yes No> Yes No	Water-Stair Aquatic Fau True Aquat Hydrogen S Oxidized R Presence o Recent Iror Thin Muck Gauge or V Other (Expl C Depth (inche Depth (inche	una (B13) ic Plants (B14 Sulfide Odor (C nizospheres of f Reduced Iron Reduction in Surface (C7) Vell Data (D9) ain in Remark s): N/A s): N/A s): N/A s): 2") C1) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicators Surface Soil Cr Drainage Patte Dry-Season W X Crayfish Burrov Saturation Visil Stunted or Stree X Geomorphic Po X FAC-Neutral To	s (minimum of two required) racks (B6) erns (B10) ater Table (C2) ws (C8) ble on Aerial Imagery (C9) essed Plants (D1) osition (D2) est (D5)

roject/Site:	F3886 Port Union to	Mulhauser	Rebuild Proje	ct			City/County	West Chester	Township/Butler Sampling Date: 8/13/2019
oplicant/Owner:	Duke Energy Ohio						State	0-00-	Sampling Point: DP04
estigator(s):	Cori Jansing and K	aitlin Hillier	-						ip, Range: S8, T2E, R2N
ndform (hillslope	the second se		Shoulder				1		al relief (concave, convex, none): none
pe (%):	0%	Lat:		39.30	933		Long:		84.479029 Datum: NAD83 UTM16N
	e:Udorthents (Ud)	Lat.		55.50			Long.		NWI classification: none
	ologic conditions on th	e site typical	for this time c	f vear?	-		Yes	X No	
Vegetation	N	, Soil	N	, or Hydrology	N	significantly distu			al Circumstances" present? Yes X No
e Vegetation	N	, Soil	N	, or Hydrology	N	naturally problem			, explain any answers in Remarks.)
in the second data of	A TRACTACIÓN DE TRACTACIACIÓN DE TRACTACIACIÓN DE TRACTACIACIACIACIACIACIACIACIACIACIACIACIACIA								, explain any answers in Remarks.)
drophytic Ve dric Soil Pres	FINDINGS Att getation Present? logy Present?		nap snown	Yes Yes Yes	nt locations	No x No x No x No x No x	Is the	Sampled Ar a Wetland?	
mano.		-							
GETATION	Use scientific	names of	plants.			Absolute	Dominant	Indicator	1
e Stratum (Plot	t size: 30' radius)					% Cover	Species?	Status	Dominance Test worksheet:
Constantin (1 101							openea:	Cialua	Sector Part Part Part
							<u> </u>		Number of Dominant Species
								<u> </u>	That Are OBL. FACW. or FAC: 0 (A)
									(A)
-									Total Number of Dominant
							Total Cover		Species Across All Strata: 2 (B)
_							Total OUVEI		
ling/Shrub Stra	tum (Plot size: 15' ra	dius)							Percent of Dominant Species
and se official of a	The second of the								That Are OBL, FACW, or FAC: 0% (A/B)
									(A/B)
									Brouglanes Index workshoet
									Prevalence Index worksheet:
							Total Course		Total 9/ Cover of
							Total Cover		Total % Cover of: Multiply by: That Are OBL, FACW, or FAC: A/B
rb Stratum (Plo	t size: 5' radius)								OBL species x1 =
Festuca rubra	7 million 10 million			-		65%	Yes	FACU	
Sorghum halep						30%	Yes	FACU	
						20%	No	FACU	FAC species x3 = FACU species 130% x4 = 5.2
Trifolium prater						5%	No	FACU	
Dipsacus fullor Cirsium arvens						<u> </u>	No	FACU	UPL species x5 = Column Totals: 1.30 (A) 5.2 (E)
									Column Totals: <u>1.30</u> (A) <u>5.2</u> (B
Erigeron annuu	US					5%	No	FACU	Desidence in the second
									Prevalence Index = B/A = 4.00
									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)
									Instanton of building and and united building and
									¹ Indicators of hydric soil and wetland hydrology must
									be present, unless disturbed or problematic.
						130% =	Total Cover	-	
									201 M 1 72/845
a start from the starter	m (Plot size: 30' rad	us)	-						Hydrophytic
ody vine Stratu						2000			Vegetation
ody vine Stratu									and the second se
									Present? Yes No X
							Total Cover		Present? Yes No X

Project/Site:	F3886 Port Union to	Mulhauser	Rebuild Projec	t					City/County	Fairfield/Butler		Sampling Date: 8/14/20	19
pplicant/Owner:	Duke Energy Ohio								State	Other and the second se	Sampling Point:	DP05	
vestigator(s):	Cori Jansing and Ka	itlin Hillier									p, Range: S3, T2E, R2N		
andform (hillslope	the state of the s		Stream Terrace	е							I relief (concave, convex, none): concave	
lope (%):	0%	Lat:			39.31874	1			Long:		34.452418	Datum: NAD83 UTM	16N
	e:Eden silty clay loam		rcent slopes, r	noderately e								ssification: none	
	ologic conditions on th								Yes	X No	(If no, explain in Remark		
re Vegetation	N	, Soil	N	, or Hyd	irology	N	signif	cantly dist			al Circumstances" present?	Yes X No	
re Vegetation	N	, Soil	N	, or Hyd		N		ally probler			explain any answers in Rema	the second se	- 7
in a state of the second	A TRACTAGE A										capitally anonoro in riona	No./	
				Yes Yes Yes	x x x x	ocation	No No No No		Is the	Sampled Aro a Wetland?		xNo	
emarks:													
EGETATION	Use scientific	names of	plants.					bsolute	Dominant	Indicator	r		
ree Stratum (Plot	t size: 30' radius)										Dominance Test workshow		
Condum (Pion	. orze. ov raulus)							Cover	Species?	Status	Dominance Test workshee	76a	
											Number of Dominant Specie	e	
2													141
3								_			That Are OBL. FACW, or FA	. 3	(A)
											Total Number of Dominant		
5.								-	= Total Cover		Total Number of Dominant	2	(8)
									- Total Cover		Species Across All Strata:	3	(B)
opling/Chrub Stra	atum (Plot size: 15' rad	lines									Descent of Deminent Creation		
1. Salix nigra	atum (Piot size. 15 fat			_				30%	Yes	OBL	Percent of Dominant Specie That Are OBL, FACW, or FA		(A/B)
2. Fraxinus penns	autropica							5%	No	FACW	That Ale ODL, FACW, OF FA	100%	(AVD)
	sylvanica							576	NO	FACW			
4								_			Prevalence Index workshe	::	
5.								0501	-		7.1.10 0		
					_			35%	= Total Cover		Total % Cover of:	Multiply by:	A/D
lark Stratum (Dia	t aiza: E' radiua)										That Are OBL, FACW, or FA OBL species 125		A/B
erb Stratum (Plo	at size. 5 radius)			-				7501	Mart	001			_
1. Typha latifolia								75%	Yes	OBL	FACW species 60°		-
2. Phalaris arundi								30%	Yes	FACW	FAC species 5%		-
 Impatiens cape 								20%	No	FACW	FACU species 5%		_
4. Scirpus atrovire								20%	No	OBL	UPL species	x5 =	
5. Ageratina altiss								5%	No	FACU	Column Totals: 1.9	5 (A) 2.8	(B
6. Juncus torreyi								5%	No	FACW		1211 S.S.	
7. Vernonia gigan	ntea							5%	No	FAC	Prevalence Index	= B/A = 1.44	-
8							_	_					_
9											and the answer of the	Accession in the second second	
0											Hydrophytic Vegetation In	dicators:	
L											S. Servicesta		
2					_						X 1-Rapid Test for Hy		
3.					_						X 2-Dominance Test i		
4											X 3-Prevalence Index		
5												aptations ¹ (Provide supportir	ng
6								_				on a separate sheet)	
7								_			Problematic Hydro	phytic Vegetation ¹ (Explain)	
8											Indiantes of buddless in	unitered by dealers and	
9								_		, <u> </u>	¹ Indicators of hydric soil and		
)								1000/			be present, unless disturbed	or problematic.	
								160%	= Total Cover	-			
		7.2									and the state		
	um (Plot size: 30' radi	us) -									Hydrophytic		
1.	the second second second	-	<u> </u>					_		<u> </u>	Vegetation		
-											Present? Ye	s X No	
2,									= Total Cover				
2									- Total Sover				

Project/Site:	F3886 Port Union to	o Mulhauser	Rebuild Proje	ct			City/County	Fairfield/Butler		Sampling Date: 8/14/2019
pplicant/Owner:	Duke Energy Ohio		-					: OH	Sampling Point:	DP06
vestigator(s):	Cori Jansing and K	aitlin Hillier							p, Range: S3, T2E, R2N	
andform (hillslope	The second s		Backslope						relief (concave, convex, none):	convex
lope (%):	5%	Lat:		39.318	755		Long:		4.452458	Datum: NAD83 UTM16N
Contraction in the second	e Eden silty clay loan	- CT C - C - C		CONTRACTOR AND A CONTRACTOR OF			Long.		NWI classi	
	ologic conditions on th						Vee	X No	(If no, explain in Remarks.)	
e Vegetation	N	, Soil	N	, or Hydrology	N	significantly distu			al Circumstances" present?	
1	N		N						A CONTRACTOR OF	Yes X No
re Vegetation		, Soil	-		N	naturally problem			explain any answers in Remarks	.)
1. A			map showii		it location	is, transects, imp		and the second second		
lydric Soil Pres		h		Yes Yes	5	No <u>x</u> No <u>x</u>		Sampled Are		No <u>x</u>
vetland Hydrol	logy Present?			Yes	-	No <u>x</u>	- 14			
emarks:										
EGETATION	Use scientific	names of	f plants.						1	
1	and the second second					Absolute	Dominant	Indicator	Anora Composito	
ree Stratum (Plot	t size: 30' radius)					% Cover	Species?	Status	Dominance Test worksheet:	
l										
2									Number of Dominant Species	
3									That Are OBL, FACW, or FAC:	0 (A)
£									and the state of the state of the	
5									Total Number of Dominant	
							Total Cover		Species Across All Strata:	(B)
									a state of the state of the	
	atum (Plot size: 15' ra	dius)							Percent of Dominant Species	
Lonicera maac	skii		-			5%	Yes	UPL	That Are OBL, FACW, or FAC:	0% (A/B)
3.									A stranger in a sea	
4							<u> </u>		Prevalence Index worksheet:	
5										
						5% =	Total Cover		Total % Cover of:	Multiply by:
									That Are OBL, FACW, or FAC:	A/B
lerb Stratum (Plot	ot size: 5' radius)			_					OBL species	x1 =
1. Lonicera maac	skii					20%	Yes	UPL	FACW species 4%	x2 = 0.08
2. Solidago canad	densis					3%	No	FACU	FAC species 3%	x3 = 0.09
3. Impatiens cape	ensis					3%	No	FACW	FACU species 9%	x4 = 0.36
4. Carex blanda	A					3%	No	FAC	UPL species 25%	x5 = 1.25
5. Lonicera japon	nica					3%	No	FACU	Column Totals: 0.41	(A) 1.78 (B)
5. Vitis aestivalis						3%	No	FACU	100 10 100 100	
. Packera glabel	lia					1%	No	FACW	Prevalence Index = E	3/A = 4.34
3.								(
Ð.									1. I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I	
0.									Hydrophytic Vegetation Indic	ators:
L.						11.2				
2									1-Rapid Test for Hydro	phytic Vegetation
3.									2-Dominance Test is >	50%
4.									3-Prevalence Index is	≤3.0 ¹
5.									4-Morphological Adapt	ations ¹ (Provide supporting
ð.									data in Remarks or on	a separate sheet)
7.								_		tic Vegetation ¹ (Explain)
3.										
9.									¹ Indicators of hydric soil and we	tland hydrology must
).									be present, unless disturbed or	
-						36% =	Total Cover	-	and the second design of the second	
		-						_		
Voody Vine Stratu	m (Plot size: 30' rad	ius)							Hydrophytic	
1.			-						Vegetation	
										No X
2									100	
2							Total Cover			

Sampling Point:

ches) Color (moist)	% Co	lor (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16" 10YR 3/1		0YR 4/6	10	С	М	Sandy Clay Loam	
					A		
			·				
					_		
Type: C=Concentration, D=Depletion,	RM=Reduced Ma	atrix CS=Covere	d or Coated S	Sand Grains	² Locati	on: PL=Pore Lining, M	1=Matrix
ydric Soil Indicators ³ :						Indicators of Hydric	
Histosol (A1)		Sandy Gleye	d Matrix (S4))		Iron-Mangane	ese Masses (F12)
Histic Epipedon (A2)		Sandy Redo	x (S5)			Very Shallow	Dark Surface (F22)
Black Histic (A3)		Stripped Mat	trix (S6)			Other (Explain	n in Remarks)
Hydrogen Sulfide (A4)		Dark Surface	e (S7)			The second se	
Stratified Layers (A5)		Loamy Muck	y Mineral (F1)			
2 cm Muck (A10)		Loamy Gleye	ed Matrix (F2))			
Depleted Below Dark Surface (A11)	Depleted Ma	trix (F3)				
Thick Dark Surface (A12)		X Redox Dark	Surface (F6)			³ The hydric soil indic	cators have been updated to
Sandy Mucky Mineral (S1)		Depleted Da	rk Surface (F	7)		comply with the I	Field Indicators of Hydric Soils
5 cm Mucky Peat or Peat (S3)		X Redox Depre	essions (F8)			in the United Sta	tes, Version 8.0, 2016.
Restrictive Layer (if observed):							
Type:							
					10000	Selection 3	
					Hydric	Soil Present?	Yes <u>X</u> No
emarks: HYDROLOGY Wetland Hydrology Indicators:	pruirod: chack all	that apply)			Hydric		
emarks: IYDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one is re	equired: check all		ed Leaves (BS	9)	Hydric	Secondary Indicator	rs (minimum of two required)
emarks: IYDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one is re Surface Water (A1)	equired: check all	Water-Staine	ed Leaves (BS	9)	Hydric	Secondary Indicator	rs (minimum of two required) Cracks (B6)
Armarks: AYDROLOGY Netland Hydrology Indicators: Primary Indicators (minimum of one is re Surface Water (A1) High Water Table (A2)	equired: check all	Water-Staine Aquatic Faur	na (B13)		Hydric	Secondary Indicator Surface Soil C Drainage Patt	rs (minimum of two required) Cracks (B6) erns (B10)
Armarks: AYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is re Surface Water (A1) High Water Table (A2) X Saturation (A3)	equired: check all	Water-Staine Aquatic Faur True Aquatic	na (B13) Plants (B14)		Hydric	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2)
Itemarks: IYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is re Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1)	equired: check all	Water-Staine Aquatic Faur True Aquatic Hydrogen Su	na (B13) Plants (B14) ulfide Odor (C) :1)		Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8)
Armarks: AYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is re Surface Water (A1) High Water Table (A2) X Saturation (A3)	equired: check all	Water-Staine Aquatic Faur True Aquatic Hydrogen St Oxidized Rhi	na (B13) Plants (B14)) 1) h Living Root		Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2)
Armarks: AYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is response) Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	equired: check all	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of	na (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror) 1) n Living Root n (C4)	ts (C3)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1)
Image: Second State Sta	equired: check all	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron	na (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in) 1) n Living Root n (C4)	ts (C3)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2)
Image: Primary Indicators (minimum of one is responsible) 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)	-	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron I Thin Muck S	na (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7)) 1) n Living Root n (C4)	ts (C3)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2)
IYDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one is responsive) Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We	na (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7)) n Living Roof n (C4) Tilled Soils (ts (C3)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2)
Image: Sparsely Vegetated Concave Surface Algal Mater 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 Image Sparsely Vegetated Concave Surface		Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We	na (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9)) n Living Roof n (C4) Tilled Soils (ts (C3)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2)
Image: Second State Sta	ry (B7)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We	na (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks) n Living Roof n (C4) Tilled Soils (ts (C3)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is regeneration) 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 Image Sparsely Vegetated Concave Surface Field Observations: Surface Water Present?	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or Wo Other (Expla	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks): <u>N/A</u>) n Living Roof n (C4) Tilled Soils (ts (C3)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2)
emarks: YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one is re 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 Imager Sparsely Vegetated Concave Surface Sparsely Vegetated Concave Surface Surface Water Present? Yes Water Table Present? Yes	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron I Thin Muck S Gauge or We Other (Expla	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks): N/A): N/A) 1) n Living Rool n (C4) Tilled Soils (s)	ts (C3) C6)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F	rs (minimum of two required) Cracks (B6) erns (B10) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2)
Image: Second State Sta	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We Other (Expla Depth (inches Depth (inches	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks): N/A): N/A) 1) n Living Rool n (C4) Tilled Soils (s)	ts (C3) C6)	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F X FAC-Neutral T	rs (minimum of two required) Cracks (B6) terns (B10) Vater Table (C2) ows (C8) tible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) Test (D5)
Image: Second State Sta	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We Other (Expla Depth (inches Depth (inches	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks):N/A):N/A):N/A) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F X FAC-Neutral T	rs (minimum of two required) Cracks (B6) terns (B10) Vater Table (C2) ows (C8) tible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) Test (D5)
emarks: Yetland Hydrology Indicators: Primary Indicators (minimum of one is re 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 Imager Sparsely Vegetated Concave Surfater Surface Water Present? Yess Nater Table Present? Yess Saturation Present? Yess	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We Other (Expla Depth (inches Depth (inches	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks):N/A):N/A):N/A) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F X FAC-Neutral T	rs (minimum of two required) Cracks (B6) terns (B10) Vater Table (C2) ows (C8) tible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is responsive 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 Imagel Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Saturation Present? Yes Surface Water Present? Yes Saturation Present?	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We Other (Expla Depth (inches Depth (inches	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks):N/A):N/A):N/A) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F X FAC-Neutral T	rs (minimum of two required) Cracks (B6) terns (B10) Vater Table (C2) ows (C8) tible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is responsive 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 Imagel Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Saturation Present? Yes Surface Water Present? Yes Saturation Present?	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We Other (Expla Depth (inches Depth (inches	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks):N/A):N/A):N/A) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F X FAC-Neutral T	rs (minimum of two required) Cracks (B6) terns (B10) Vater Table (C2) ows (C8) tible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) Test (D5)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is responsive of the second sec	ry (B7) ace (B8)	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxidized Rhi Presence of Recent Iron Thin Muck S Gauge or We Other (Expla Depth (inches Depth (inches	ha (B13) Plants (B14) ulfide Odor (C izospheres or Reduced Iror Reduction in urface (C7) ell Data (D9) in in Remarks):N/A):N/A):N/A) n Living Roof n (C4) Tilled Soils (s) Wetland	ts (C3) C6) d Hydrolog	Secondary Indicator Surface Soil C Drainage Patt Dry-Season W Crayfish Burro Saturation Vis Stunted or Str X Geomorphic F X FAC-Neutral T	rs (minimum of two required) Cracks (B6) terns (B10) Vater Table (C2) ows (C8) tible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) Test (D5)

Project/Site:	F3886 Port Union to	Mulhauser	neould Proj	ject			_		City/County	Fairfield/E	sutier			ampling D	ate: 8/14/20	19
pplicant/Owner:	Duke Energy Ohio								State	ОН	_	Sampling Poin	t	D	P08	
vestigator(s):	Cori Jansing and Ka	itlin Hillier	· · · · · · · · · · · · · · · · · · ·							ection, To	wnship	, Range: S3, T2E,	R2N			
andform (hillslope	e, terrace, etc.):		Summit			1) (I)					Local	relief (concave, con	ivex, none): co	ncave		
lope (%):	1%	Lat:		-	39.3232	269			Long:		-84	4.450521		Datum: M	NAD83 UTM	16N
	e: Patton silty clay loan	1. State 1.		(Pa)									NWI classific	ation: r	none	
	ologic conditions on the								Yes	х	No	(If no, explain	in Remarks.)	-		
re Vegetation	N	, Soil	N		Hydrology	N	sic	gnificantly dist			Norma	I Circumstances" p		Yes	X No	
re Vegetation	N	, Soil	N	_	Hydrology	N		aturally probler				explain any answer				1
	A TRACE IN COMPANY OF THE OWNER		-							1	oucu,	company any another	o in ricinario.)			
	FINDINGS Atta		nap snow			location										
	egetation Present?			Yes	-	-	No_	X		Sample		a	Ver	Ma		
Hydric Soil Pres Wetland Hydrol				Yes Yes		-	No_No	x x	within	a Wetla	ind ?		Yes	_ NO_	<u>x</u>	
	logy Fresent!			165	, 	-	140		9							
Remarks:																
EGETATION	Use scientific r	names of	f plants.													
								Absolute	Dominant	Indicate	6 T 1	4				
ee Stratum (Plot	t size: 30' radius)							% Cover	Species?	Status	5	Dominance Test	worksheet:			
											_					
2							<u> </u>			-	_	Number of Domin				
3										-	-	That Are OBL, FA	CW. or FAC:		1	(A)
e								_		-	_	Total Mumber of	eminent.			
D								_	- Total Ca		_	Total Number of E			2	(0)
								_	= Total Cover		_	Species Across A	i Strata:	-	2	(B)
Conline/Chash Stre	atum (Plot size: 15' rad	time)									-	Descent of Demin	at Casaina			
1.	atum (Flot size, 15 Tau	ius)			- 10 C							Percent of Domina			50%	
										-	_	That Are OBL, FA	GVV, OF FAC.		00.70	(A/B)
2										_	_					
3											-		workshaat			
4										_	-	Prevalence Index	worksneet:			
5.									= Total Cover		-	Total % C	over of		Multiply by:	
									- Total Cover			That Are OBL, FA			Multiply by:	A/B
Herb Stratum (Plot	t size: 5' radius)											OBL species		x1 =	_	100
1. Solidago canad			-	_				75%	Yes	FACU		FACW species	10%	x2 =	0.2	-
2. Vernonia gigan								20%	Yes	FAC	-	FAC species	50%	x3 =	1.5	_
3. Ambrosia arten								10%	No	FACU		FACU species	120%	x4 =	4.8	_
4. Eupatorium ser								10%	No	FAC		UPL species		x5 =		_
5. Dipsacus fullon							- 7	10%	No	FACU	1	Column Totals:	1.80	(A) -	6.5	(B)
6. Setaria faberi								10%	No	FACU	_	a contraction of the second				
7. Melilotus officin	nalis							5%	No	FACU		Prevale	nce Index = B/	A =	3.61	
8. Parthenocissus								5%	No	FACU	_	, rerait	ince index bi		0.01	_
9. Rubus allegher								5%	No	FACU						
0. Apocynum can								5%	No	FAC	_	Hydrophytic Veg	etation Indica	ors:		
1. Bidens frondos								5%	No	FACW	_					
2. Geum canader							-77	5%	No	FAC	-	1-Rapid 1	est for Hydrop	nytic Veget	ation	
3. Impatiens cape								5%	No	FACW	<u></u>		nce Test is >50	Sec. 70		
4. Rumex crispus								5%	No	FAC	_		nce Index is ≤3			
5. Verbena urticifo								5%	No	FAC	_	the second se	logical Adaptat		ide supporti	ng
6.											- 6		emarks or on a			
7.											_		atic Hydrophytic			
8.									·	-	-					
9.										-	_	¹ Indicators of hydr	c soil and wetla	and hydrolc	ogy must	
0.										-	-	be present, unless				
								180%	= Total Cover	-	-	pressin, unicas	and a set of b	Carley House		
		_						1			_					_
	m (Plot size: 30' radiu	us)									_	Hydrophytic				
loody vine Stratu			-		3						1.1	Vegetation				
1.											-	and the second se				
t											1000	Present?	Yes	No	X	
12									= Total Cover	_	-	Present?	Yes	No	x	

DUKE ENERGY OHIO F3886 PORT UNION TO MUHLHAUSER REBUILD PROJECT WETLAND DELINEATION REPORT

APPENDIX

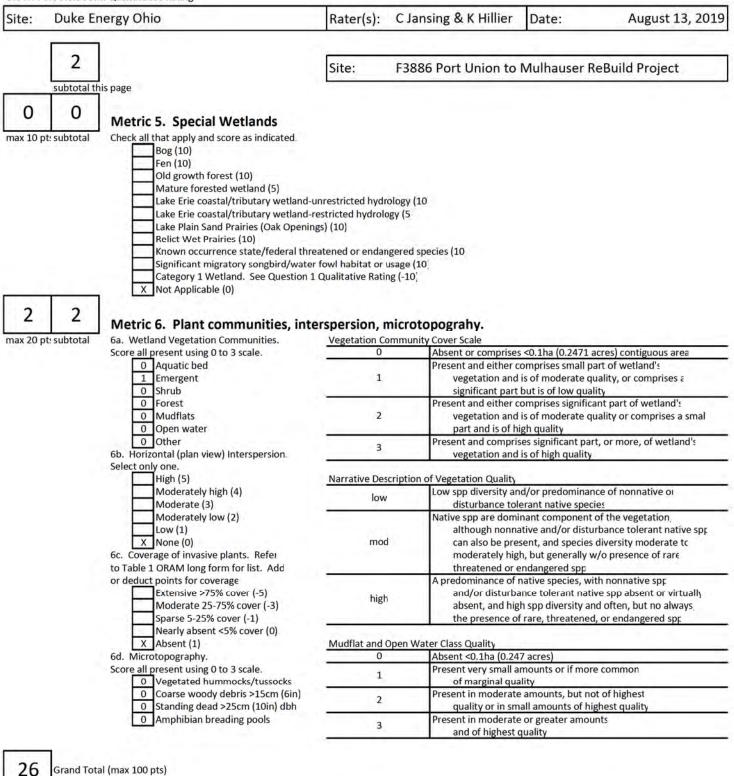


OHIO RAPID ASSESSMENT METHOD 5.0 FORMS

ORAM v 5.0 Field Form Quantitative Rating

Site:	Duke Er	nergy Ohio	Rater(s):	C Jansing & K Hillier	Date:	August 13, 2019
O max 6 pts.	0 subtotal	Metric 1. Wetland Area (size). Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pt) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2 pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pts) X <0.1 acres (0.04ha) (0 pts)		F3886 Port Union to	Mulhauser Re	Build Project
1 max 14 pts	1 subtotal	Metric 2. Upland buffers and su 2a. Calculate average buffer width. Select only of WIDE. Buffers average 50m (164ft) on MEDIUM. Buffers average 25m to <50 NARROW. Buffers average 10m to <2 X VERY NARROW. Buffers average <10r 2b. Intensity of surrounding land use. Select on VERY LOW. 2nd growth or older fores LOW. Old field (>10 years), shrubland MODERATELY HIGH. Residential, fend X HIGH. Urban, industrial, open pasture	one and assign 5 r more around v Om (82 to <1641 5m (32ft to <82 m (<32ft) aroun e or double che st, prairie, savar l, young second ed pasture, par	score. Do not double check vetland perimeter (7 t) around wetland perimeter (ft) around wetland perimeter d wetland perimeter (0 sck and average mah, wildlife area, etc. (7 growth forest. (5 k, conservation tillage, new fa	(1	
16 max 30 pts	17 subtotal	 Metric 3. Hydrology 3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (Perennial surface water (lake or stread) 3c. Maximum water depth. Select only one and >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. X None or none apparent (12) Recovering (3) Recent or no recovery (1) 	m) (5) Lassign score	Arc of wetland Part of wetland Part of ripariar Semi- to perma Regularly inun X Seasonally inun Seasonally satu observed point source filling/gradin road bed/RR dredging	plain (1) m/lake and other hu d/upland (e.g. forest or upland corridor (turation. Score one anently inundated/si dated/saturated (3) ndated (2) urated in upper 30cm (nonstormwater) g), complex (1) (1) or dbl check aturated (4)
6.5 max 20 pts	1.0.0	Recovered (6) X X Recovering (3) X Recent or no recovery (1)	check and aver	es observed shrub/saplin herbaceous/ sedimentatio dredging farming	aquatic bed remova on	

ORAM v 5.0 Field Form Quantitative Rating



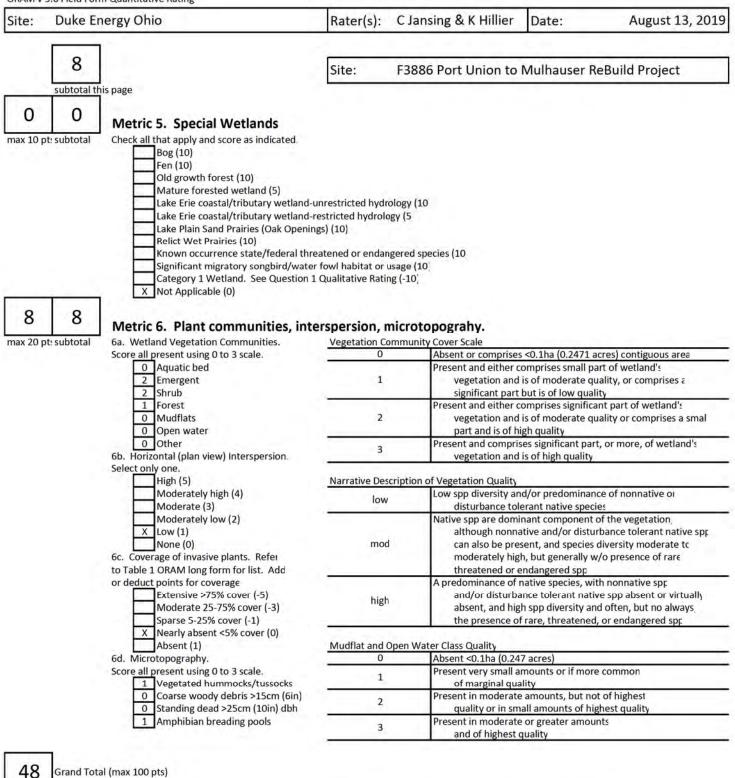
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

ORAM v 5.0 Field Form Quantitative Rating

Site:	Duke Er	nergy Ohio	Rater(s):	C Jansing & K Hillier	Date:	August 13, 2019
2 max 6 pts.	2 subtotal	Metric 1. Wetland Area (size). Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pt 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) X 0.3 to <3 acres (0.12 to <1.2ha) (2 pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)		F3886 Port Union to	Mulhauser Re	Build Project
5 max 14 pts	7 subtotal	Metric 2. Upland buffers and su 2a. Calculate average buffer width. Select only of WIDE. Buffers average 50m (164ft) or MEDIUM. Buffers average 25m to <50 X NARROW. Buffers average 10m to <2 VERY NARROW. Buffers average <10m 2b. Intensity of surrounding land use. Select on VERY LOW. 2nd growth or older fores X LOW. Old field (>10 years), shrubland X MODERATELY HIGH. Residential, fend HIGH. Urban, industrial, open pasture	one and assign s r more around v Om (82 to <164) 5m (32ft to <82 m (<32ft) aroun e or double che st, prairie, savar l, young second red pasture, par	core. Do not double check vetland perimeter (7 t) around wetland perimeter ft) around wetland perimeter d wetland perimeter (0 ck and average nah, wildlife area, etc. (7 growth forest. (5 k, conservation tillage, new fi	(1	
20 max 30 pts	27 subtotal	Metric 3. Hydrology 3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) X Seasonal/Intermittent surface water (Perennial surface water (lake or stream 3c. Maximum water depth. Select only one and >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime.	3) m) (5) I assign score.	3b. Connectivity. Score all 100 year flood Between stree X Part of wetlar X Part of riparia 3d. Duration inundation/sa Semi- to perm Regularly inur Seasonally sat observed point source filling/gradi road bed/Ri dredging	Iplain (1) am/lake and other hu d/upland (e.g. forest n or upland corridor ituration. Score one ianently inundated/s idated/saturated (3) indated (2) urated in upper 30cr	t), complex (1) (1) or dbl check saturated (4)
13 max 20 pts	40 subtotal	X Recovered (6) X Recovering (3) Recent or no recovery (1)	check and aver	age es observed shrub/saplii herbaceous sedimentat dredging removal farming	/aquatic bed remova on	1

ORAM v 5.0 Field Form Quantitative Rating



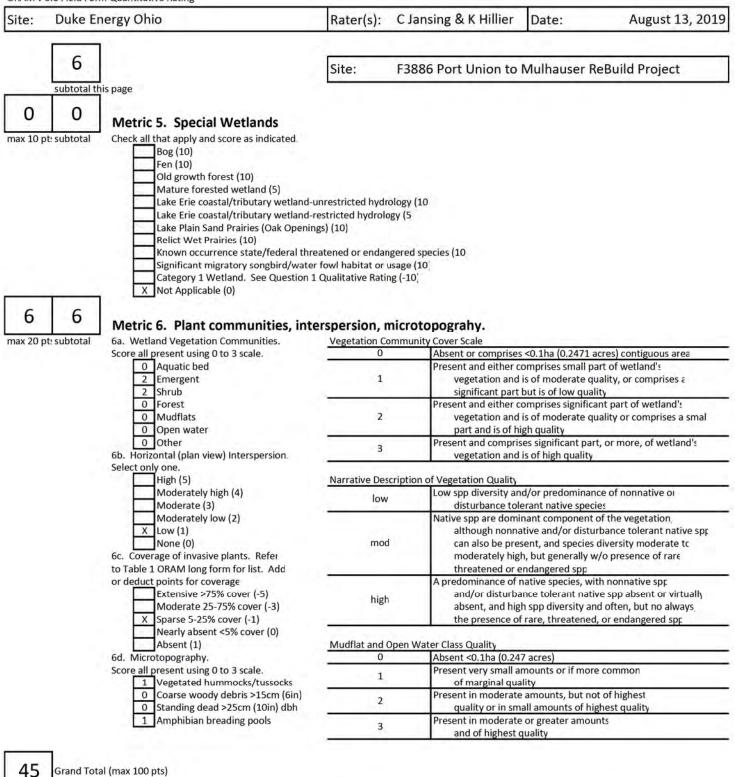
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

ORAM v 5.0 Field Form Quantitative Rating

Site:	Duke Er	nergy Ohio	Rater(s):	C Jansing & K Hillier	Date:	August 13, 2019
2 max 6 pts.	2 subtotal	Metric 1. Wetland Area (size). Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pt 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) X 0.3 to <3 acres (0.12 to <1.2ha) (2 pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)		F3886 Port Union to	Mulhauser Re	Build Project
5 max 14 pts	7 subtotal	 VERY LOW. 2nd growth or older fores X LOW. Old field (>10 years), shrubland X NARROW. Buffers average 10m to <2 VERY NARROW. Buffers average <10r Intensity of surrounding land use. Select on VERY LOW. 2nd growth or older fores X LOW. Old field (>10 years), shrubland X MODERATELY HIGH. Residential, fenc HIGH. Urban, industrial, open pasture 	one and assign 5 r more around v Om (82 to <164) 5m (32ft to <82 n (<32ft) aroun e or double che st, prairie, savar l, young second ed pasture, par	score. Do not double check vetland perimeter (7 t) around wetland perimeter (ft) around wetland perimeter d wetland perimeter (0 sck and average mah, wildlife area, etc. (7 growth forest. (5 k, conservation tillage, new fa	(1	
20 max 30 pts	27 subtotal	Metric 3. Hydrology 3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) X Seasonal/Intermittent surface water (Perennial surface water (lake or stream 3c. Maximum water depth. Select only one and >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime.	3) m) (5) assign score <u>Score one or d</u> all disturbances ditch tile dike weir	3b. Connectivity. Score all 1 100 year flood Between strea X Part of wetland X Part of ripariar 3d. Duration inundation/sa Semi- to perma Regularly inun Seasonally inun X Seasonally satu observed point source filling/gradin road bed/RR dredging	plain (1) m/lake and other hu d/upland (e.g. forest n or upland corridor turation. Score one anently inundated/s dated/saturated (3) ndated (2) urated in upper 30cr (nonstormwater) g	r), complex (1) (1) or dbl check aturated (4)
12 max 20 pts	39 subtotal 39 subtotal this page	X Recovered (6) X Recovering (3) Recent or no recovery (1)	check and aver	es observed ing removal	aquatic bed remova on	

ORAM v 5.0 Field Form Quantitative Rating



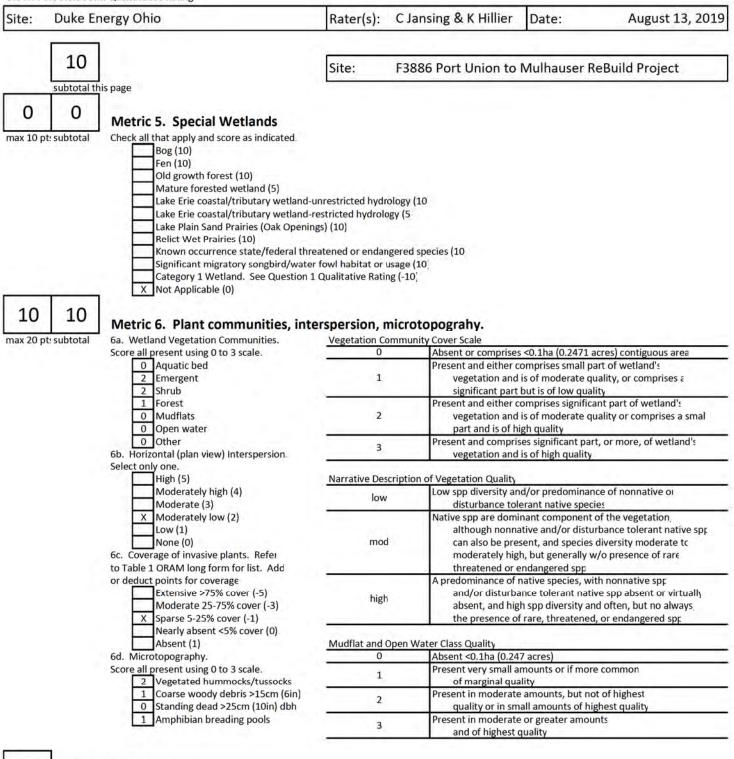
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

ORAM v 5.0 Field Form Quantitative Rating

Site:	Duke En	nergy Ohio	Rater(s):	C Jansing & K Hillie	Date:	August 13, 2019
2 max 6 pts.	2 subtotal	Metric 1. Wetland Area (size). Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pt) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) X 0.3 to <3 acres (0.12 to <1.2ha) (2 pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)		F3886 Port Union t	o Mulhauser Re	eBuild Project
5 max 14 pts.	7 subtotal	 VERY LOW. 2nd growth or older fores VERY LOW. 2nd growth or older fores VERY LOW. 2nd growth or older fores LOW. Old field (>10 years), shrubland MODERATELY HIGH. Residential, fenc X HIGH. Urban, industrial, open pasture 	one and assign s r more around v Om (82 to <164f 5m (32ft to <82 n (<32ft) around e or double che st, prairie, savar l, young second red pasture, par	core. Do not double check vetland perimeter (7 t) around wetland perimete ft) around wetland perimete d wetland perimeter (0 ck and average nah, wildlife area, etc. (7 growth forest. (5 k, conservation tillage, new	r (1	
17 max 30 pts.	24 subtotal	Metric 3. Hydrology 3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (X Perennial surface water (lake or stread 3c. Maximum water depth. Select only one and >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime.	3) m) (5) assign score. <u>Score one or d</u> all disturbances ditch tile dike weir	3b. Connectivity. Score a 100 year floc Between stra X Part of wetla X Part of ripari 3d. Duration inundation/s Semi- to peri X Regularly inu Seasonally in Seasonally in Season	dplain (1) mam/lake and other h nd/upland (e.g. fores an or upland corridor aturation. Score one nanently inundated/ ndated/saturated (3) undated (2) turated in upper 30c ee (nonstormwater) ing	st), complex (1) r (1) e or dbl check saturated (4)
13 max 20 pts.	37 subtotal 37 subtotal this page	X Recovered (6) X Recovering (3) Recent or no recovery (1)	check and aver	es observed ing removal		al

ORAM v 5.0 Field Form Quantitative Rating



47 Grand Total (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Comments:

DUKE ENERGY OHIO F3886 PORT UNION TO MUHLHAUSER REBUILD PROJECT WETLAND DELINEATION REPORT

APPENDIX



OHIO HHEI DATA SHEETS

SITE NAME/LOCATION S01 Duke Energy Ohi	io F3886 Port Union to Mulhauser Rebuild	
SITE NUMBER RIVER	Divitivie / the / the /	<1
NGTH OF STREAM REACH (ft) 200 LAT 3 ATE 8/13/2019 SCORER C. Jansing & K.	39.309121 LONG -84.481696 RIVER CODE RIVER MILE	
	r to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	-
REAM CHANNEL X NONE / NATURAL CHAN		RECOVI
MODIFICATIONS:		
	the second se	_
JBSTRATE (Est. % of every type of substrate p dd total number of significant substrate types	found (Max of 8) Final metric score is A + B	нне
<u>YPE</u> PERCE		Met
BLDR SLABS [16 pts]	X SILT [3 PTS] 30	Poin
BOULDER (>256mm) [16 pts]	LEAF PACK/WOODY DEBRIS [3 PTS]	Substr
BEDROCK [16 PTS] COBBLE (65-256mm) [12 pts]	CLAY or HARDPAN [0 PT] 5	Max =
GRAVEL (2-64mm) [9 pts] 20		
X SAND (<2mm) [6 pts] 45		
Total of Percentages of Bldr		13
abs, Boulder, Cobble, & Bedrock 0	_ `` 9	
RE OF 2 MOST PREDOMINANT SUBSTRATE TY	TOTAL NUMBER OF SUBSTRATE TYPES:	A +
		-
		Pool D
	erts or storm water pipes) (Check ONLY one box):	Max =
>30 centimeters [20 pts] >22.5 - 30 cm [30 pts]	>5 cm - 10 cm [15 pts] <5 cm [5 pts]	<u> </u>
>10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	20
	30	-
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
ANK FULL WIDTH (Measured as the average o	of 3-4 measurements) (Check ONLY one box):	Bank
>4.0 meters (>13') [30 pts]	>1.0 m - 1.5 m (>3'3" - 4'8") [15 pts]	Wid
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]	≤1.0 m (≤ 3'3") [5 pts]	Max =
>1.5 m - 3.0 m (>4'8" - 9'7") [20 pts]		20
the second s	AVERAGE BANKFULL WIDTH (meters)	20
COMMENTS channelized	AVERAGE BANKFOLL WIDTH (Ineters)	-
COMMENTS channelized		
	s information must also be completed	
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u>	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY	
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> <u>R</u> (Per Bank) <u>L R</u>	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank)	7e
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> R (Per Bank) Unde >10m Moderate 5-10m	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L (Most Predominant per Bank) L Mature Forest, Wetland Conservation Tillag Immature Forest, Shrub, or Old Field XIX	i
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> R (Per Bank) Uide >10m Moderate 5-10m Narrow <5m	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L (Most Predominant per Bank) L Mature Forest, Wetland Conservation Tillag Immature Forest, Shrub, or Old Field XIX Residential, Park, New Field Open Pasture, Row	í v Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> R (Per Bank) Uide >10m Moderate 5-10m Narrow <5m	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L (Most Predominant per Bank) L Mature Forest, Wetland Conservation Tillag Immature Forest, Shrub, or Old Field XIX	í v Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillag Immature Forest, Shrub, or Old Field Urban or Industria Residential, Park, New Field Open Pasture, Row Fenced Pasture Mining or Construct	í v Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Cher Stream Flowing	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillag Immature Forest, Shrub, or Old Field Urban or Industria Residential, Park, New Field Open Pasture, Row Fenced Pasture Mining or Construct eck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)	í v Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillag Immature Forest, Shrub, or Old Field Urban or Industria Residential, Park, New Field Open Pasture, Row Fenced Pasture Mining or Construct eck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)	í v Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Interst Comments Fish Observed	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub, or Old Field Residential, Park, New Field Conservation Tillag Penced Pasture Wining or Construct eck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) titial) Dry channel, no water (Ephemeral)	í v Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Interst	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub, or Old Field Residential, Park, New Field Conservation Tillag Penced Pasture Wining or Construct eck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) titial) Dry channel, no water (Ephemeral)	í v Crop

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? Ves Vo QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township/City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipition: Quantity:
Photographer Information:
Elevated Turbidity? (Y/N): N Canopy (% open):
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. And attach results) Lab Number
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream? (Y/N) Y If not, please explain:
Additional comments/description of pollution impacts
BIOTIC EVAULATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual)
Fish observed? (Y/N) Y Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) Y Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of Interest for site evaluation and a parrative description of the stream's location
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location
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Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location
FLOW FLOW
FLOW FLOW
FLOW FLOW
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location

PHWH Form Page - 2

ChieEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) :	66
SITE NAME/LOCATION S02 Duke Energy Ohio F3886 Port Union to Mulhauser Rebuild SITE NUMBER RIVER BASIN East Fork Mill Creek-Mill Creek DRAINAGE AREA (mi ²) <1	
LENGTH OF STREAM REACH (ft) 54 LAT 39.31022 LONG -84.467936 RIVER CODE RIVER MILE DATE 8/13/2019 SCORER C. Jansing & K. Hillier COMMENTS	_
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RI	ECOVERY

TYPE	PERCENT	Max of 8). Final metric score is A + B. <u>TYPE</u>	PERCENT	Metr
BLDR SLABS [16 pts]		X SILT [3 PTS]	50	Poin
BOULDER (>256mm) [16 pts]		LEAF PACK/WOODY DEBRIS [3 P	TSI	(1)
BEDROCK [16 PTS]		FINE DETRITUS [3 PTS]		Substr
COBBLE (65-256mm) [12 pts]		CLAY or HARDPAN [0 PT]	5	Max =
X GRAVEL (2-64mm) [9 pts]	25			
SAND (<2mm) [6 pts]	20	ARTIFICIAL [3 PTS]	· · · · · · · · · · · · · · · · · · ·	
SAME (Semini) [o pes]				116
Total of Percentages of Bldr	(A)	- 22	(B)	1
Slabs, Boulder, Cobble, & Bedrock		12	4	1.757
ORE OF 2 MOST PREDOMINANT SU	BSTRATE TYPES:	TOTAL NUMBER OF SUB	STRATE TYPES:	A +
Maximum Pool Depth (Measure the	maximum pool de	epth within the 61m (200') evaluation	reach at the time of	Pool De
evaluation. Avoid plunge pools from	road culverts or s	torm water pipes) (Check ONLY one b	oox):	Max =
>30 centimeters [20 pts]		>5 cm - 10 cm [15 pts]		21 - 1
>22.5 - 30 cm [30 pts]		<5 cm [5 pts]		1.0
>10 - 22.5 cm [25 pts]		NO WATER OR MOIST CHANNEL	[0 pts]	25
			10	
COMMENTS		MAXIMUM POOL DEPTH	(centimeters):	
Contract the second second second				
3ANK FULL WIDTH (Measured as th	e average of 3-4 m	easurements) (Check ONLY one bo	x):	Bank
>4.0 meters (>13') [30 pts]		>1.0 m - 1.5 m (>3'3" - 4'8") [15	pts]	Wid
× >3.0 m - 4.0 m (>9'7" - 13') [25	ots]	≤1.0 m (≤ 3'3") [5 pts]		Max =
>1.5 m - 3.0 m (>4'8" - 9'7") [20	pts]		0.452	111723
			3.0	25
COMMENTS		AVERAGE BANKFULL W	/IDTH (meters)	
	This inform	nation must also be completed		
RIPARIAN ZONE AND FLOODPL	AIN QUALITY * N	NOTE: River Left (L) and Right (R) as lo	oking downstream	
RIPARIAN WIDTH	FLOOD	PLAIN QUALITY		
L R (Per Bank)	L R (Most P	Predominant per Bank)	LR	
Wide >10m		Forest, Wetland	Conservation	-
Moderate 5-10m		re Forest, Shrub, or Old Field	XX Urban or Indu	
X X Narrow <5m None		ntial, Park, New Field Pasture	Open Pasture, Mining or Con	
Comments	LL Fenceu	Fasture		struction
and the second		111 To 1		
FLOW REGIME (At Time of Eval	uation) (Check ON	[main]		
Stream Flowing	l- /l-ttatally	and the second se	pools, no flow (Intermittent)
Subsurface flow with isolated p	ools (Interstitial)	Dry channel, no water (E	pnemeral)	
Comments				
Comments SINUOSITY (Number of bends p	Contraction of the local division of the loc	channel) (Check ONLY one box):	THE A	
Comments	per 61m (200ft) of c 1.0 1.5	channel) (Check ONLY one box): 2.0 2.5	3.0	

ADDITIO	NAL STREAM INFORMATION (This Information Must Also be Completed):
	QHEI PERFORMED? Yes Vo QHEI Score (If Yes, Attach Completed QHEI Form)
	DOWNSTREAM DESIGNATED USE(S)
□ WWH	Name: Distance from Evaluated Stream
CWH	Name: Distance from Evaluated Stream
EWH	Name: Distance from Evaluated Stream
	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quad	Irangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County:	Township/City:
	MISCELLANEOUS
Base Flow	Conditions? (Y/N): Y Date of last precipition: Quantity:
	ner Information:
Elevated T	urbidity? (Y/N): N Canopy (% open):
Were samp	eles collected for water chemistry? (Y/N): (Note lab sample no. or id. And attach results) Lab Number
Field Meas	ures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the samp	bling reach representative of the stream? (Y/N) Y If not, please explain:
Additional	comments/description of pollution impacts
Frogs or Ta	ID number. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual) red? (Y/N)NVoucher(Y/N)NSalamander Observed? (Y/N)N_Voucher? (Y/N)N dpoles Observed? (Y/N)NVoucher(Y/N)NAquatic Macroinvertebrates Observed? (Y/N)NVoucher? (Y/N)N Regarding Biology
Inc	DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): slude important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location
FLOW	Prove the second
	Hovey suiter dominete

PHWH Form Page - 2

SITE NAME/LOCATION S03 Duke Energy Ohi		
SITE NUMBER RIVER		<1
	39.31095 LONG -84.462257 RIVER CODE RIVER MILE Hillier COMMENTS RIVER MILE	_
DATE 8/13/2019 SCORER C Jansing & K		_
TREAM CHANNEL NONE / NATURAL CHAN	r to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	· · · · · · · · · · · · · · · · · · ·
MODIFICATIONS:	INNEL KIRCOVERED IRECOVERING IRECENTOR	NO RECOVER
	resent. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).	
Add total number of significant substrate types PE PERCE		HHEI Metric
BLDR SLABS [16 pts]	X SILT [3 PTS] 35	Points
BOULDER (>256mm) [16 pts]	LEAF PACK/WOODY DEBRIS [3 PTS]	
BEDROCK [16 PTS]	FINE DETRITUS [3 PTS]	Substra
COBBLE (65-256mm) [12 pts] 5	CLAY or HARDPAN [0 PT]	Max = 4
GRAVEL (2-64mm) [9 pts] 25		-
X SAND (<2mm) [6 pts] 35	ARTIFICIAL [3 PTS]	13
Total of Percentages of Bldr	(A) (B)	112
labs, Boulder, Cobble, & Bedrock 5	9 4	1.00
ORE OF 2 MOST PREDOMINANT SUBSTRATE TY	YPES: TOTAL NUMBER OF SUBSTRATE TYPES:	A + B
	<i>pool depth within the 61m (200')</i> evaluation reach at the time of erts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
>30 centimeters [20 pts]	>5 cm - 10 cm [15 pts]	WidA
>22.5 - 30 cm [30 pts]	<pre></pre>	1.000
>10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	25
	10	
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	1.1
ANK FULL WIDTH (Measured as the average o	of 3-4 measurements) (Check ONLY one box):	Bankfu
>4.0 meters (>13') [30 pts]	>1.0 m - 1.5 m (>3'3" - 4'8") [15 pts]	Width
	≤1.0 m (≤3'3") [5 pts]	Max = 3
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]		1.00
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts]		1120
>1.5 m - 3.0 m (>4'8" - 9'7") [20 pts]	1.5	20
	AVERAGE BANKFULL WIDTH (meters)	20
Source in the second	AVERAGE BANKFULL WIDTH (meters)	20
Source in the second	AVERAGE BANKFULL WIDTH (meters)	20
Source and Source and Source and Source and Source and Source and FloodPlain Quality is a source and FloodPlain Quality of the source and FloodPlain Quality is a source and floodPlain Qual	s information <u>must</u> also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream	20
Source and State and St	AVERAGE BANKFULL WIDTH (meters)	20
Source of the second	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T	īllage
<1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH L R (Per Bank) L Wide >10m Moderate 5-10m	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus	
Source of the second	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T	illage trial Row Crop
Source of the second	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus Residential, Park, New Field Open Pasture,	illage trial Row Crop
Source of the second	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus Residential, Park, New Field Open Pasture, Fenced Pasture Mining or Conservation eck ONLY one box):	ïllage itrial Row Crop itruction
Source of the second	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub, or Old Field Residential, Park, New Field Fenced Pasture Conservation T Mining or Conservation	ïllage itrial Row Crop itruction
Source of the second	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub, or Old Field Residential, Park, New Field Fenced Pasture Conservation T Mining or Conservation	ïllage itrial Row Crop itruction
Source of the second	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub, or Old Field Residential, Park, New Field Fenced Pasture Eeck ONLY one box): titial) Moist Channel, isolated pools, no flow (Intermittent)	ïllage itrial Row Crop itruction
St.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALIT R (Per Bank) L R Wide >10m L R Moderate 5-10m L R None L R Comments Comments L FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Intersteed flow with isolat	AVERAGE BANKFULL WIDTH (meters) s information must also be completed TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Immature Forest, Shrub, or Old Field Residential, Park, New Field Fenced Pasture Eeck ONLY one box): titial) Moist Channel, isolated pools, no flow (Intermittent)	ïllage itrial Row Crop itruction

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
ISGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
ounty: Township/City:
MISCELLANEOUS
ase Flow Conditions? (Y/N): Y Date of last precipition: Quantity:
hotographer Information:
levated Turbidity? (Y/N): N Canopy (% open):
/ere samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. And attach results) Lab Number
ield Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream? (Y/N) Y If not, please explain:
dditional comments/description of pollution impacts
ish observed? (Y/N; N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) N rogs or Tadpoles Observed? (Y/N) N Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N omments Regarding Biology
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location
LOW
hunry suitch

PHWH Form Page - 2

SITE NAME/LOCATION S04 Duke Energy Ohio	F3886 Port Union to Mulhauser Rebuild
SITE NUMBER RIVER BA	ASIN East Fork Mill Creek-Mill Creek DRAINAGE AREA (mi ²) <1
	0.311768 LONG -84.459896 RIVER CODE RIVER MILE
ATE 8/13/2019 SCORER C. Jansing & K. H	
	o "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
TREAM CHANNEL	NEL RECOVERED RECOVERING RECENT OR NO RECOV
MODIFICATIONS:	
UBSTRATE (Est. % of every type of substrate pre	sent. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).
dd total number of significant substrate types fo	
YPE PERCEN	
BLDR SLABS [16 pts]	X SILT [3 PTS] 50 Poir
BOULDER (>256mm) [16 pts]	LEAF PACK/WOODY DEBRIS [3 PTS]
BEDROCK [16 PTS]	FINE DETRITUS [3 PTS] Subst
COBBLE (65-256mm) [12 pts] 30	
SAND (<2mm) [6 pts] 10	ARTIFICIAL [3 PTS] 10
Total of Percentages of Bldr labs, Boulder, Cobble, & Bedrock 0	(A) (B)
ORE OF 2 MOST PREDOMINANT SUBSTRATE TYP	ES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4
Naximum Pool Depth (Measure the maximum po	ool depth within the 61m (200') evaluation reach at the time of Pool D
valuation. Avoid plunge pools from road culvert	
>30 centimeters [20 pts]	X >5 cm - 10 cm [15 pts]
>22.5 - 30 cm [30 pts]	<5 cm [5 pts]
>10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 5
ANK FULL WIDTH (Measured as the average of 3	3-4 measurements) (Check ONLY one box): Bank
>4.0 meters (>13') [30 pts]	>1.0 m - 1.5 m (>3'3" - 4'8") [15 pts] Wid
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]	≤1.0 m (≤ 3'3") [5 pts] Max :
>1.5 m - 3.0 m (>4'8" - 9'7") [20 pts]	
COMMENTS	AVERAGE BANKFULL WIDTH (meters)
This i	information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
	OODPLAIN QUALITY
	Aost Predominant per Bank) L R lature Forest, Wetland Conservation Tillage
	ature Forest, Wetland Conservation Tillage
🛛 Narrow <5m 🛛 🗖 Re	esidential, Park, New Field Open Pasture, Row Crop
	enced Pasture Mining or Construction
Comments	
FLOW REGIME (At Time of Evaluation) (Chec Stream Flowing	:k ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)
0	
Subsurface flow with isolated pools (Interstit	
Subsurface flow with isolated pools (Interstit Comments	
	t) of channel) (<u>Ch</u> eck ONLY one box):
Comments	t) of channel) (Check ONLY one box): 2.0 2.5 3.0 >3

	ONAL STREAM INFO	and the second second	QHEI Score	la sector de	Completed QHEI Form)	
	DOWNSTREAM DESIG	C. straightford and have		(II Tes, Attach		
m wwh	Name:	NATED USE(S)	Distance from Eva	aluated Stream		
ССМН	Name:	Der Skalander	Distance from Eva	-	Land and the second sec	
	Name:	The sectors	- Distance from Eva	and the second s	the real state of the second state of the state	
2000		OPIES OF MAPS, IN	-		REA. CLEARLY MARK THE SITE LOCATION	
USGS Qua	drangle Name:				NRCS Soil Map Stream Order	
County:	Contraction of the second		Township/C		The second se	
	MISCELLANEOUS					
Base Flow	Conditions? (Y/N): Y	Date of last prec	ipition:	c	luantity:	
Photograp	her Information:	121		1014	rivits/um	917
Elevated T	urbidity? (Y/N): N	Canopy ((% open):	Sector Sector		12
Were sam	ples collected for water	chemistry? (Y/N):	N (No	te lab sample no. o	or id. And attach results) Lab Number	
Field Meas	sures: Temp (°C)	Dissolved	Oxygen (mg/l)	pH (S.U.)	Conductivity (µmhos/cm)	
Is the sam	pling reach representat	ive of the stream? (Y/N) Y	If not, please expla	in:	
10	8 11 77			Seven Call		
Additional	comments/description	of pollution impact	ts	1.50		and a
		and the second s	IT ID BREATAN DEL	24	CARLY REPORTED AND INCOME AND A DATE OF A	166032
Frogs or Ta	ved? (Y/N, N Vou adpoles Observed? (Y/N s Regarding Biology	N) N Voucher	_	_	N_Voucher? (Y/N) N brates Observed? (Y/N) NVoucher? (Y/I	N) _ M
In		Toran and the state of the stat	A DESCRIPTION OF THE PARTY OF T		I (This <u>must</u> be completed): I a narrative description of the stream's location	
		in availate teal	in the mark new (2)	An on the Annual A	TTUNID HILI HOUSE THAT HILL AN ARTS.	
		h	overhansin one y Such	cie/	banchis	
FLOW —	→	#	A	£ .	At Comment	
		hun	er u hensins ul y sue Kle			
	Sec. Carden		PHWH F	orm Page - 2		di.

THE PROPERTY AND A DESCRIPTION OF THE PROPERTY OF THE PROPERTY

SITE NAME/LOCATION S05 Duke Energy Oh		_
	BASIN East Fork Mill Creek-Mill Creek DRAINAGE AREA (mi ²) 39.312659 LONG -84.457544 RIVER CODE RIVER MILE	<1
ENGTH OF STREAM REACH (ft) 200 LAT ATE 8/13/2019 SCORER C. Jansing & K		
	r to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
TREAM CHANNEL NONE / NATURAL CHAI	NNEL RECOVERED RECOVERING RECENT OR	NO RECOVE
MODIFICATIONS:		
UBSTRATE (Est. % of every type of substrate p	present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).	1
dd total number of significant substrate types	found (Max of 8). Final metric score is A + B.	HHE
YPE PERCE		Metr
BLDR SLABS [16 pts] BOULDER (>256mm) [16 pts]	X SILT [3 PTS] 30	Point
BEDROCK [16 PTS]	Fine Detritus [3 PTS]	Substra
COBBLE (65-256mm) [12 pts]	CLAY or HARDPAN [0 PT] 5	Max =
X GRAVEL (2-64mm) [9 pts] 45		
SAND (<2mm) [6 pts] 20	0 ARTIFICIAL [3 PTS]	10
Total of Percentages of Bldr	(A) (B)	16
abs, Boulder, Cobble, & Bedrock 0	4	1
RE OF 2 MOST PREDOMINANT SUBSTRATE TY	TOTAL NUMBER OF SUBSTRATE TYPES:	A + 1
the state of the second second second		
	pool depth within the 61m (200') evaluation reach at the time of	Pool De Max =
 >30 centimeters [20 pts] 	erts or storm water pipes) (Check ONLY one box): >5 cm - 10 cm [15 pts]	IVIAX -
>22.5 - 30 cm [30 pts]	<pre><5 cm [5 pts]</pre>	
>10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	25
	10	
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
ANK FULL WIDTH (Measured as the average o	of 3-4 measurements) (Check ONLY one box):	Bankf
>4.0 meters (>13') [30 pts]	>1.0 m - 1.5 m (>3'3" - 4'8") [15 pts]	Widt
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]	≤1.0 m (≤ 3'3") [5 pts]	Max =
>1.5 m - 3.0 m (>4'8" - 9'7") [20 pts]	2.7	20
COMMENTS	AVERAGE BANKFULL WIDTH (meters)	20
		1
	is information <u>must</u> also be completed	
Thi: RIPARIAN ZONE AND FLOODPLAIN QUALIT	TY * NOTE: River Left (L) and Right (R) as looking downstream	
Thi: RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u>	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY	
Thi: RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R	TY * NOTE: River Left (L) and Right (R) as looking downstream	ïllage
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> R (Per Bank) L R Wide >10m Moderate 5-10m	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L (Most Predominant per Bank) L Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field X	trial
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field XX Residential, Park, New Field Open Pasture,	trial Row Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT <u>RIPARIAN WIDTH</u> R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY L (Most Predominant per Bank) L Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field X	trial Row Crop
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus Residential, Park, New Field Open Pasture, Mining or Conservation	trial Row Crop
Thi: RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Church Stream Flowing	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus Residential, Park, New Field Open Pasture, Fenced Pasture Mining or Conservation weck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)	trial Row Crop truction
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Choice of the second	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L R Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus Residential, Park, New Field Open Pasture, Fenced Pasture Mining or Conservation weck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent)	trial Row Crop struction
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Interst Comments	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus Residential, Park, New Field Open Pasture, Mining or Conservation Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent) stitial) Dry channel, no water (Ephemeral)	trial Row Crop truction
This RIPARIAN ZONE AND FLOODPLAIN QUALIT RIPARIAN WIDTH R (Per Bank) L R Wide >10m Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Interst	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY (Most Predominant per Bank) L Mature Forest, Wetland Conservation T Immature Forest, Shrub, or Old Field Urban or Indus Residential, Park, New Field Open Pasture, Mining or Conservation Fenced Pasture Moist Channel, isolated pools, no flow (Intermittent) stitial) Dry channel, no water (Ephemeral)	trial Row Crop truction

TREAM DESIGNATED USE(S) : Distance from Evaluated Stream : Distance from Evaluated Stream
Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
Distance from Evaluated Stream
IG: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
Name:NRCS Soil Map Page:NRCS Soil Map Stream Order
Township/City:
LANEOUS
ns? (Y/N): Y Date of last precipition: Quantity:
mation:
P (Y/N): N Canopy (% open):
ected for water chemistry? (Y/N): (Note lab sample no. or id. And attach results) Lab Number
Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (μmhos/cm)
ch representative of the stream? (Y/N) Y If not, please explain:
nts/description of pollution impacts
N' N Voucher(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) N Observed? (Y/N) N Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N ing Biology
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): portant landmarks and other features of Interest for site evaluation and a narrative description of the stream's location Musical by Munerstand by Musical by Musical vg.
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Lil b
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dominated by hubiceas vesj woody demelwied, goldund, etc. dubn

PHWH Form Page - 2

turin 12, 2012 merestern

SITE NAME/LOCATION S06 Duke Energy Ohio	o F3886 Port Union to Mulhauser Rebuild
SITE NUMBER RIVER	Divitivities Alleri (hill)
	39.31352 LONG -84.455033 RIVER CODE RIVER MILE
ATE 8/13/2019 SCORER C. Jansing & K.	
	to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
IREAM CHANNEL INONE / NATURAL CHAN	INEL XRECOVERED RECOVERING RECENT OR NO RECOV
NODIFICATIONS.	
UBSTRATE (Est. % of every type of substrate pr	resent. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).
dd total number of significant substrate types f	2019년 1월 2019년 2019년 2017년 1월 2019년 1월
YPE PERCE	
BLDR SLABS [16 pts]	SILT [3 PTS]25 Poin
BOULDER (>256mm) [16 pts]	LEAF PACK/WOODY DEBRIS [3 PTS]
BEDROCK [16 PTS] COBBLE (65-256mm) [12 pts]	L FINE DETRITUS [3 PTS] Subst CLAY or HARDPAN [0 PT] 10 Max =
X GRAVEL (2-64mm) [9 pts] 30	
X SAND (<2mm) [6 pts] 35	ARTIFICIAL [3 PTS]
Total of Descentance of Dide	
Total of Percentages of Bldr abs, Boulder, Cobble, & Bedrock 0	(A) [15] [B] 4
RE OF 2 MOST PREDOMINANT SUBSTRATE TY	PES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4 4
laximum Pool Depth (Measure the maximum p	pool depth within the 61m (200') evaluation reach at the time of Pool D
valuation. Avoid plunge pools from road culver	rts or storm water pipes) (Check ONLY one box): Max =
>30 centimeters [20 pts]	>5 cm - 10 cm [15 pts]
>22.5 - 30 cm [30 pts]	<5 cm [5 pts]
>10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters):
ANK FULL WIDTH (Measured as the average of	
>4.0 meters (>13') [30 pts]	>1.0 m - 1.5 m (>3'3" - 4'8") [15 pts] Wid
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]	≤1.0 m (≤ 3'3") [5 pts] Max =
>1.5 m - 3.0 m (>4'8" - 9'7") [20 pts]	3.4 2
COMMENTS	AVERAGE BANKFULL WIDTH (meters) 3.4 2.
2011 A. 1997 Mar.	
This	information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALIT	Y * NOTE: River Left (L) and Right (R) as looking downstream
	LOODPLAIN QUALITY Most Predominant per Bank) L R
	Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage
Wide > 10m	mmature Forest, Shrub, or Old Field
	Residential, Park, New Field Open Pasture, Row Crop
Moderate 5-10m	Annual Destroya Construction
Moderate 5-10m	Fenced Pasture Mining or Construction
Moderate 5-10m	
Moderate 5-10m	
Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Interst	eck ONLY one box):
Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Interst Comments	eck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
Moderate 5-10m Narrow <5m None Comments FLOW REGIME (At Time of Evaluation) (Che Stream Flowing Subsurface flow with isolated pools (Interst	eck ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)

DOWNSTREAM DESIGNA	ATED USE(S)
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COP	PIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County:	Township/City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y	Date of last precipition: Quantity:
Photographer Information:	
Elevated Turbidity? (Y/N): N	Canopy (% open):
Were samples collected for water c	
	Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
is the sampling reach representative	e of the stream? (Y/N) Y If not, please explain:
Additional comments (description o	f nellution importe
Additional comments/description o	
ID numbe Fish observed? (Y/N) <u>N</u> Vouc	ecord all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site er. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual) her(Y/N) N Salamander Observed? (Y/N) N Voucher? (Y/N) N N Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
ID numbe Fish observed? (Y/N) <u>N</u> Vouc Frogs or Tadpoles Observed? (Y/N)	rr. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual)
ID numbe Fish observed? (Y/N) <u>N</u> Vouc Frogs or Tadpoles Observed? (Y/N)	rr. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual)
ID numbe Fish observed? (Y/N) <u>N</u> Vouc Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology DRAWI	rr. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual)
ID numbe Fish observed? (Y/N) N Vouc Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology DRAWI	er. Include appopriate field data sheets from the Primary Hedwater Habitat Assessment Manual) her(Y/N) N Salamander Observed? (Y/N) N N N Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N N Voucher(Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N ING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Instantion Instantian Instantian

PHWH Some Films

Total and solar series of

SITE NAME/LOCATION S07 Duke Energy Oh	io F3886 Port Union to Mulhauser Rebuild	
	BASIN East Fork Mill Creek-Mill Creek DRAINAGE AREA (mi ²)	<1
ENGTH OF STREAM REACH (ft) 200 LAT DATE 8/14/2019 SCORER C. Jansing & K	39.318736 LONG -84.452170 RIVER CODE RIVER MILE	
	er to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
TREAM CHANNEL NONE / NATURAL CHAN		
MODIFICATIONS:		IO NECOVE
	present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).	uur
Add total number of significant substrate types TYPE PERCE	지수는 것은 것을 가지 않는 것을 것을 것을 수 있다. 것은 것은 것은 것을 가지 않는 것을 가지 않는 것을 수 있다. 것은 것을 하는 것을 수 있다. 것을 하는 것을 수 있다. 것을 하는 것을 수 있다. 것을 하는 것을 하는 것을 하는 것을 하는 것을 하는 것을 수 있다. 것을 하는 것을 수 있다. 것을 하는 것을 수 있다. 것을 하는 것을 하는 것을 수 있다. 것을 하는 것을 수 있다. 것을 하는 것을 수 있다. 것을 것을 수 있다. 것을 수 있다. 것을 수 있다. 것을 수 있다. 것을 것을 수 있다. 것을 것을 수 있다. 것을 수 있다. 것을 수 있다. 것을 것을 수 있다. 것을 수 있다. 것을 것을 수 있다. 것을 것을 수 있다. 것을 것을 수 있다. 것을 것을 수 있다. 것을 것을 수 있다. 것을 것을 것을 수 있다. 것을 것을 것을 것을 수 있다. 것을 것을 것을 것을 것을 것을 수 있다. 것을	HHEI
BLDR SLABS [16 pts]	SILT [3 PTS]	Point
BOULDER (>256mm) [16 pts]	LEAF PACK/WOODY DEBRIS [3 PTS]	10.048
BEDROCK [16 PTS]	FINE DETRITUS [3 PTS]	Substra
COBBLE (65-256mm) [12 pts]	X CLAY or HARDPAN [0 PT] 80	Max =
GRAVEL (2-64mm) [9 pts] 5 X SAND (<2mm) [6 pts] 15		-
		9
Total of Percentages of Bldr ilabs, Boulder, Cobble, & Bedrock 0		
ORE OF 2 MOST PREDOMINANT SUBSTRATE T	TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3	A + B
Maximum Pool Depth (Measure the maximum	pool depth within the 61m (200') evaluation reach at the time of	Pool De
valuation. Avoid plunge pools from road culve	erts or storm water pipes) (Check ONLY one box):	Max =
>30 centimeters [20 pts]	>5 cm - 10 cm [15 pts]	21.0
>22.5 - 30 cm [30 pts]	<5 cm [5 pts]	1 25
>10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	-
		-
BANK FULL WIDTH (Measured as the average o ना	of 3-4 measurements) (Check ONLY one box):	Bankfu
>4.0 meters (>13') [30 pts]	>1.0 m - 1.5 m (>3'3" - 4'8") [15 pts]	Width Max = 1
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]	≤1.0 m (≤ 3'3") [5 pts]	
1 21.5 III - 5.0 III (24 8 - 57 7 [20 pts]	1.5	20
COMMENTS	AVERAGE BANKFULL WIDTH (meters)	20
		5- 3
	is information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALI RIPARIAN WIDTH	TY * NOTE: River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY	
	(Most Predominant per Bank) L R	
	Mature Forest, Wetland Conservation Til	
	Immature Forest, Shrub, or Old Field Urban or Indust Residential, Park, New Field Open Pasture, R	
None 🔲	Fenced Pasture Mining or Const	ruction
Comments		
comments		
FLOW REGIME (At Time of Evaluation) (Ch	X Moist Channel, isolated pools, no flow (Intermittent)	
FLOW REGIME (At Time of Evaluation) (Ch Stream Flowing	titial) Dry channel, no water (Ephemeral)	
FLOW REGIME (At Time of Evaluation) (Ch	stitial) Dry channel, no water (Ephemeral)	
FLOW REGIME (At Time of Evaluation) (Ch Stream Flowing Subsurface flow with isolated pools (Inters		
FLOW REGIME (At Time of Evaluation) (Ch Stream Flowing Subsurface flow with isolated pools (Inters Comments	00ft) of channel) (Check ONLY one box):	-

	QHEIFERFORMEDI	🗌 Yes 🗹 M	NO QHEI Score	(If Yes, Atta	ch Completed QHEI F	orm)	
	DOWNSTREAM DESI	IGNATED USE(S)	(to Inue) on	HIME STR			
wwH			Distance from	Evaluated Stream			
CWH	Name:	Transferrig	Distance from	Evaluated Stream		katel in the	
EWH	Name:	ALC: NO.	Distance from	Evaluated Stream			
	MAPPING: ATTACH	COPIES OF MAPS		NTIRE WATERSHED	AREA. CLEARLY MA	RK THE SITE LOCATION	
JSGS Qua	drangle Name:	alles - said	NRCS	Soil Map Page:	NRCS Soil Map	Stream Order	
County:			Townsh	ip/City:			τ.
	MISCELLANEOUS						
Base Flow	Conditions? (Y/N):	Y Date of last	precipition:	and the state of the second	Quantity:	a making transferration	
Photograp	oher Information:	5224.201		1913	Distribution (
Elevated 1	Furbidity? (Y/N):	N Can	opy (% open):	12121261			
Nere sam	ples collected for wat	ter chemistry? (Y/	/N): N	(Note lab sample no	o. or id. And attach re	sults) Lab Number	
Field Mea	sures: Temp (°C)	Disso	lved Oxygen (mg/l)	pH (S.U.)	Conduc	tivity (µmhos/cm)	
s the sam	pling reach represent	tative of the strea	im? (Y/N) Y	If not, please ex	plain:		16
11	2111.						
Additiona	l comments/description	on of pollution im	npacts	line l	ñ	the second second to the second	
							-
	ID nui rved? (Y/N <u>, N</u> V	mber. Include ap /oucher(Y/N)	popriate field data s	sheets from the Prin der Observed? (Y/N)	N Voucher? (Y/N		e site
Frogs or T	ID nu	mber. Include ap /oucher(Y/N) //N)NVou	popriate field data s N Salamano Icher(Y/N) N	heets from the Prin der Observed? (Y/N) Aquatic Macroinver	N Voucher? (Y/N	at Assessment Manual)	
Frogs or T	ID nui rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y	mber. Include ap /oucher(Y/N) //N)NVou	popriate field data s N Salamano Icher(Y/N) N	heets from the Prin der Observed? (Y/N) Aquatic Macroinver	N Voucher? (Y/N	at Assessment Manual)	
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology_ DR	mber. Include ap /oucher(Y/N) //N) <u>N</u> Vou AWING AND NAF	popriate field data s N Salamano icher(Y/N) N RRATIVE DESCRIPTIO	cheets from the Prin der Observed? (Y/N) Aquatic Macroinver Aquatic Macroinver	N Voucher? (Y/N rtebrates Observed? NCH (This <u>must</u> be co	at Assessment Manual)) <u>N</u> (Y/N) <u>N</u> Voucher? (Y/N	
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF	N Salamano cher(Y/N) N RRATIVE DESCRIPTIO features of Interest	cheets from the Prin der Observed? (Y/N) Aquatic Macroinver Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N tebrates Observed? CCH (This <u>must</u> be co and a narrative descri	at Assessment Manual)) <u>N</u> (Y/N) <u>N</u> Voucher? (Y/N mpleted): ption of the stream's location	N
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF	N Salamano cher(Y/N) N RRATIVE DESCRIPTIO features of Interest	cheets from the Prin der Observed? (Y/N) Aquatic Macroinver Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N tebrates Observed? CH (This <u>must</u> be co and a narrative descri	nt Assessment Manual)) <u>N</u> (Y/N) <u>N</u> Voucher? (Y/N mpleted):	N
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology ts Regarding Biology DR nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	N Salamano cher(Y/N) N RRATIVE DESCRIPTIO features of Interest	cheets from the Prin der Observed? (Y/N) Aquatic Macroinver Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N tebrates Observed? CH (This <u>must</u> be co and a narrative descri	N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location s lupc filled w	N
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	N Salamano Salamano Salamano Salamano Salamano Salamano N Salamano N Salamano N Salamano N Salamano N Salamano N Salamano Salamano N Salamano Sal	cheets from the Prin der Observed? (Y/N) Aquatic Macroinver Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N tebrates Observed? ACH (This <u>must</u> be co and a narrative descri	N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location s lupc filled w	N
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	N Salamano Salamano Salamano Salamano Salamano Salamano N Salamano N Salamano N Salamano N Salamano N Salamano N Salamano Salamano N Salamano Sal	cheets from the Prin der Observed? (Y/N) Aquatic Macroinver Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N N Voucher? (Y/N ntebrates Observed? ACH (This <u>must</u> be co and a narrative descri - Steene honeys	nt Assessment Manual)) <u>N</u> (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location s ls pc filed a wth	N Th
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	N Salamano Salamano Salamano Salamano Salamano Salamano N Salamano N Salamano N Salamano N Salamano N Salamano Salamano N Salamano Salamano Salamano N Salamano Sal	theets from the Prin der Observed? (Y/N) Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N N Voucher? (Y/N ntebrates Observed? ACH (This <u>must</u> be co and a narrative descri - Steene honeys	N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location s lupc filled w	N Th
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	N Salamano Salamano Salamano Salamano Salamano Salamano N Salamano N Salamano N Salamano N Salamano N Salamano Salamano N Salamano Salamano Salamano N Salamano Sal	cheets from the Prin der Observed? (Y/N) Aquatic Macroinver Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N N Voucher? (Y/N Artebrates Observed? ACH (This <u>must</u> be co and a narrative descri - Steepe honeys	N N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location slupe filled a uth msing honeyset	N Th
Frogs or T Comment In her	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	RRATIVE DESCRIPTION features of Interest	Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N N Voucher? (Y/N rebrates Observed? ACH (This <u>must</u> be co and a narrative description - Steeper honeys Overh	N N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location slupe filled a uthe msing honeysette	N Th
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	RRATIVE DESCRIPTION features of Interest	Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N N Voucher? (Y/N rebrates Observed? ACH (This <u>must</u> be co and a narrative description - Steeper honeys Overh	N N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location slupe filled a uthe msing honeysette	N Th
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	RRATIVE DESCRIPTION features of Interest	Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N N Voucher? (Y/N rebrates Observed? ACH (This <u>must</u> be co and a narrative description - Steeper honeys Overh	N N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location slupe filled a uth msing honeyset	N Th
Frogs or T Comment	ID nur rved? (Y/N; <u>N</u> V Tadpoles Observed? (Y ts Regarding Biology DR. nclude important land	Mber. Include ap /oucher(Y/N) //N) N Vou AWING AND NAF Imarks and other S of Over S of Over	RRATIVE DESCRIPTION features of Interest	Aquatic Macroinver ON OF STREAM REA for site evaluation a	N Voucher? (Y/N N Voucher? (Y/N rebrates Observed? ACH (This <u>must</u> be co and a narrative description - Steeper honeys Overh	N N (Y/N) N Voucher? (Y/N (Y/N) N Voucher? (Y/N mpleted): ption of the stream's location slupe filled a uthe msing honeysette	N Th

Stream 8

SITE NAME/LOCATION S08 Duke Energy Ohio	o F3886 Port Union to Mulhauser Rebuild	
SITE NUMBER RIVER E		<1
ENGTH OF STREAM REACH (ft) 200 LAT 3 DATE 8/13/2019 SCORER C. Jansing & K.	19.321012 LONG -84.451337 RIVER CODE RIVER MILE Hillier COMMENTS	
	to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	IS
TREAM CHANNEL		NO RECOVER
MODIFICATIONS:		
UBSTRATE (Est. % of every type of substrate pr	resent. Check ONLY 2 predominant substrate TYPE boxes (Max of 40).	10
dd total number of significant substrate types fo	ound (Max of 8). Final metric score is A + B.	HHE
YPE PERCEN		Metri
BLDR SLABS [16 pts] BOULDER (>256mm) [16 pts]	X X SILT [3 PTS] 95	Point
BEDROCK [16 PTS]		Substra
COBBLE (65-256mm) [12 pts]	CLAY or HARDPAN [0 PT] 5	Max =
GRAVEL (2-64mm) [9 pts]		
SAND (<2mm) [6 pts]	ARTIFICIAL [3 PTS]	8
Total of Percentages of Bldr	(A) (B)	1 °
labs, Boulder, Cobble, & Bedrock 0	. 6 2	2574
ORE OF 2 MOST PREDOMINANT SUBSTRATE TYP	PES: TOTAL NUMBER OF SUBSTRATE TYPES:	A + B
Assimum Pool Donth (Magguro the maximum r	pool depth within the 61m (200') evaluation reach at the time of	Pool De
	ts or storm water pipes) (Check ONLY one box):	Max =
>30 centimeters [20 pts]	>5 cm - 10 cm [15 pts]	
>22.5 - 30 cm [30 pts]	<pre><5 cm [5 pts]</pre>	
>10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 15	
ANK FULL WIDTH (Measured as the average of	3-4 measurements) (Check ONLY one box):	Bankfu
>4.0 meters (>13') [30 pts]	>1.0 m - 1.5 m (>3'3" - 4'8") [15 pts]	Width
	<1.0 m (< 21211) [C mto]	Max =
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]	≤1.0 m (≤ 3'3") [5 pts]	
		30
>3.0 m - 4.0 m (>9'7" - 13') [25 pts]	AVERAGE BANKFULL WIDTH (meters)	30
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS	AVERAGE BANKFULL WIDTH (meters)	30
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS	AVERAGE BANKFULL WIDTH (meters) 4.6	30
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALITY	AVERAGE BANKFULL WIDTH (meters)	30
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALITE RIPARIAN WIDTH L E R (Per Bank) L R	AVERAGE BANKFULL WIDTH (meters) information must also be completed Y * NOTE: River Left (L) and Right (R) as looking downstream LOODPLAIN QUALITY Most Predominant per Bank) L R	
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALITE . R [IPARIAN WIDTH (Per Bank) L R [I] . X Wide >10m X N	AVERAGE BANKFULL WIDTH (meters) information must also be completed Y * NOTE: River Left (L) and Right (R) as looking downstream LOODPLAIN QUALITY Most Predominant per Bank) L R Mature Forest, Wetland Conservation	Tillage
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALITY R [Per Bank) L R [U] X Wide >10m XX M Moderate 5-10m III N R	AVERAGE BANKFULL WIDTH (meters) information must also be completed Y * NOTE: River Left (L) and Right (R) as looking downstream LOODPLAIN QUALITY Most Predominant per Bank) Mature Forest, Wetland mmature Forest, Shrub, or Old Field Residential, Park, New Field Conservation Urban or Indu Open Pasture	Tillage Istrial , Row Crop
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALITY R [Per Bank) L R [U] X Wide >10m XXX M Moderate 5-10m In In R None F F F	AVERAGE BANKFULL WIDTH (meters) information must also be completed Y * NOTE: River Left (L) and Right (R) as looking downstream <u>LOODPLAIN QUALITY</u> Most Predominant per Bank) Mature Forest, Wetland mmature Forest, Shrub, or Old Field Urban or Indu	Tillage Istrial , Row Crop
>3.0 m - 4.0 m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m (>4'8" - 9'7") [20 pts] COMMENTS This RIPARIAN ZONE AND FLOODPLAIN QUALITE RIPARIAN WIDTH L R (Per Bank) L R Wide >10m XX M Noderate 5-10m In In Narrow <5m	AVERAGE BANKFULL WIDTH (meters) and a solution must also be completed Y * NOTE: River Left (L) and Right (R) as looking downstream COODPLAIN QUALITY Most Predominant per Bank) Mature Forest, Wetland mmature Forest, Shrub, or Old Field Residential, Park, New Field Fenced Pasture Mining or Conservation Mining or Conservation	Tillage Istrial , Row Crop
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DUKE ENERGY OHIO F3886 PORT UNION TO MUHLHAUSER REBUILD PROJECT WETLAND DELINEATION REPORT

APPENDIX



ENDANGERED, THREATENED, AND RARE SPECIES CORRESPONDENCE



SPECIES	COMMON NAME	STATE STATUS	FEDERAL STATUS ²	HABITAT ³	BREEDING PERIOD ³	PROBABILITY OF OCCURENCE ⁴
				Butler County		
				MAMMAL		
Eptesicus fuscus	Big Brown Bat	SSC	1	Water, fields, forest openings, and urban and suburban areas.	August-October	Low
Lasionycteris noctivagans	Silver-Haired Bat	SCC	I	Prefer mature northern forests with ponds and streams nearby. It roosts in trees during the summer and winter.	August-October	Low
Lasiurus borealis	Red Bat	SSC	1	Solitary and prefer to roost in trees, shrubs, and clusters of weeds in the summer. They change roost sites every couple of days and often roost closer to the ground. They overwinter in trees and tree cavities.	August-October	Low
Lasiurus cinereus	Hoary Bat	SSC	1	Migratory tree bat species travel north in the summer and back south in the winter. They migrate varying distances using landmarks and magnetic cues to direct themselves, and instead of hibernating in caves, they often hibernate in trees or leaf litter.	August-October	Low
Microtus ochrogaster	Prairie Vole	SSC	1	Eastern deciduous forests. They live on the forest floor in the thick layers of leaves and loose soil.	April-October	Low
Microtus pinetorum	Woodland Vole	SSC	-	Eastern deciduous forests. They live on the forest floor in the thick layers of leaves and loose soil.	April-October	Low
Myotis lucifugus	Little Brown Bat	SSC	Ī	Water, fields, forest openings, and urban and suburban areas.	August-October	Low
Myotis septentrionalis	Northern Long- Eared Bat	SSC	Т	Wooded and Semi wooded areas, mainly along streams. Maternity colonies are around hollow trees.	August-October	Low
Myotis sodalis	Indiana Bat	SE	ΤE	Wooded and Semi wooded areas, mainly along streams. Maternity colonies are around hollow trees.	August-October	Low
Perimyotis subflavus	Tri-Colored Bat	SSC		Open forest areas that are near a source of water.	August-October	Low
Peromyscus maniculatus	Deer Mouse	SSC		Forests, grasslands, brushlands, agricultural fields and deserts.	n/a	Low
Synaptomys cooperi	Southern Bog Lemming	SSC	Ţ	Low, damp bogs and meadows with heavy vegetation growth	April-September	None
Taxidea taxus	Badger	SSC	Ţ	Grassland species, specifically favoring habitats with short grass, such as fields and pastures.	June-September	None
				BIRD		
Colinus virginianus	Northern Bobwhite	SSC	1	Forest edge	February- October	Low
Dolichonyx oryzivorus	Bobolink	SSC		Grassy hayfields and pastures, clover/alfalfa hayfields, wet prairies, and the grassy margins of marshes. Fallow fields composed of grasses and weeds also provide suitable nesting habitats.	May-June	None

Seiurus noveboracensis	Northern Waterthursh	SSC		Swampy woodlands.	n/a	None
				FISH		
Esox masquinongy	Muskellunge	scc	1	Heavily vegetated lakes with lots of tree stumps and bays. Prime stream muskellunge habitat is generally considered to be long pools (at least 0.2 miles in length) with a minimum depth of at least three to four feet and an abundance of submerged woody structure.	April-Early May	None
Moxostoma carinatum	River Redhorse	SSC	Ĩ	Found in only the largest rivers of the Ohio and Lake Erie drainage systems. They are typically found in deep pools with moderate current over bedrock or gravel substrate.	April-May	None
				INVERTEBRATE		
Alasmidonta marginata	Elktoe	SSC	Ť	Medium to large size streams but is most common in smaller streams with moderately fast current and riffles. Fine gravel mixed with sand is preferred substrate.	June-July	Low
Gomphus externus	Plains Clubtail	Э	1	Found near large, slow, muddy streams and rivers.	May-Late July	None
Orconectes (Rhoadesius) sloanii	Sloan's Crayfish	Т	Ì	Headwater and small inland streams	August-October	Low
Truncilla donaciformis	Fawnsfoot	T	1	Prefers large rivers or the lower reaches of medium- sized streams. It is most commonly found in sand or gravel.	April-May	None
Truncilla truncata	Deertoe	SSC	4	Habitats of firm sand or gravel substrates in rivers and lakes with a moderately swift current, but has been observed occasionally in smaller streams	August-July	None
Viltosa fabalis	Rayed Bean	Е	ы	Smaller, headwater creeks, but are sometimes found in large rivers and wave-washed areas of glacial lakes	n/a	Low
				REPTILE		
Clemmys guttata	Spotted Turtle	Т	1	Shallow, sluggish waters of ditches, small streams, marshes, bogs, and pond edges, especially where vegetation is abundant.	April-May	Low
Regina septemvittata	Queensnake	SSC	ľ	Prairie fens, wet meadows, wet prairies and associated open and wooded wetlands	February-March, May, August- September	None
Sistrurus catenatus	Eastern Massasauga	ш	F	Wet prairies, sedge meadows, and early successional fields. Preferred wetland habitats are marshes and fens.	April-May	Low
				AMPHIBIAN		
Eurycea lucifuga	Cave Salamander	ш	Т	In and around caves, seeps, springs, and small forested limestone creeks associated with groundwater. Rock crevices or under rocks, logs, or other debris.	December- February	None
Acris crepitans crepitans	Eastern Cricket Frog	SSC	Ť	The shores of sparesly vegetated permanent ponds and streams.	April-June	Low

				PLANT		
Arabis pycnocarpa var. adpressipilis	Southern Hairy Rock Cress	Р	т	Variable habitat from part-shade, open woods to sunny, open prairie.	n/a	Low
Arabis pycnocarpa va. Pycnocarpa	Western Hairy Rock Cress	х	Т	Meadows, meadow slopes, juniper hills, pastures, rocky outcrops, roadsides.	n/a	Low
Bromus kalmia	Prairie Brome	Р	1	Open upland woodlands, mesic to dry-mesic prairie, and grassy fens.	n/a	None
Carex mesochorea	Midland Sedge	Т	đ	Well-drained openings and clearings, oak woods and borders, fields.	n/a	Low
Carex timida	Timid Sedge	Т	I	Wet/marshy areas, sedge meadows, forests, and prairies.	n/a	Low
Cyperus acuminatus	Pale Umbrella- sedge	Р	1	Open, wet, sandy habitats. Sores, seepages and fields.	n/a	None
Echinodorus berteroi	Burhead	P	4	Muddy shores and shallow water of lakes, ponds, slow-moving streams, and ditches. Also in swamp woods and river bottoms.	n/a	Low
Ribes missouriense	Missouri Gooseberry	ST	ŀ	Mesic to dry open woodlands, savannas, woodland borders, thickets, power line clearances and small meadows and wooded areas, abandoned fields, and partially shaded fence rows.	n/a	Low
Salix caroliniana	Carolina Willow	Ρ	ł.	Wetland areas such as streams, swamps, marshes and retention ponds.	n/a	Low
Silene nivea	Snowy Campion	Е		Forested river valley.	n/a	None
Viburnum molle	Soft-leaved Arrow- wood	Т	1	Dry, rocky woods, grassland, shores of rivers or lakes.	n/a	None

1. STATE STATUS - X = extirpated, E = endangered, T = threatened, R = rare, SSC = special concern, WL = watch list, SG = significant, ** = no status but rarity warrants concern

Ohio Department of Natural Resources, Division of Wildlife Website - http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/publications/information/pub356.pdf (March 2016).

2. FEDERAL STATUS - E = endangered, T = threatened, R = rare, LELT = different listing for specific ranges or species, PE = proposed endangered, PT = proposed threatened, e/sa - appearance similar to a listed endanger species, **= not listed

United States Fish and Wildlife Service, County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species - http://www.fws.gov/midwest/endangered/lists/ohiocty.html (January 2017).

3. Habitats and Breeding Periods described by:

- NatureServe: An online encyclopedia of life [web application].2000. Version 1.1 Arlington, Virginia, USA: Association for Biodiversity information. Available: http://www.natureserve.org/ (Accessed January 6, 2017). æ.
- United States Fish and Wildlife Service Rayed Bean Fact Sheet http://www.fws.gov/midwest/endangered/clams/rayedbean/RayedBeanFactSheet.html (January 6, 2017). þ.
 - United States Fish and Wildlife Service Indiana Bat Fact Sheet http://www.fws.gov/midwest/endangered/mammals/inba/index.html (January 6, 2017). ö
 - United States Fish and Wildlife Service Northern Long-eared Bat Fact Sheet http://www.fws.gov/midwest/endangered/mammals/nleb/index.html (January 6, 2017). 'n,
 - United States Fish and Wildlife Service Eastern Massasauga Fact Sheet http://www.fws.gov/midwest/endangered/mammals/inba/index.html (January 6, 2017). i yi
 - United States Fish and Wildlife Service Running buffalo clover Fact Sheet http://www.fws.gov/midwest/endangered/mammals/nleb/index.html (January 6, 2017).
- 4. Likelihood of occurrence: None, Low, Moderate, or High based on best available data and selective field observations.

From:	susan zimmermann@fws.gov on behalf of Ohio, FW3
To:	Cori Jansing
Subject:	Duke Energy OH F3886 Port Union to Muhlhauser Rebuild, Fairfield, Butler Co.
Date:	Wednesday, September 11, 2019 9:35:31 AM



UNITED STATES DEPARTMENT OF THE INTERIOR U.S. Fish and Wildlife Service Ecological Services Office 4625 Morse Road, Suite 104 Columbus, Ohio 43230 (614) 416-8993 / Fax (614) 416-8994



TAILS# 03E15000-2019-TA-1890

Dear Ms. Jansing,

We have received your recent correspondence regarding potential impacts to federally listed species in the vicinity of the above referenced project. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. We recommend that proposed activities minimize water quality impacts, including fill in streams and wetlands. Best management practices should be utilized to minimize erosion and sedimentation.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees =3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*), we do not anticipate adverse effects to any federally endangered, threatened, proposed or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the U.S. Fish and Wildlife Service (Service) should be initiated to assess any potential impacts.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the Endangered Species Act (ESA), between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or <u>ohio@fws.gov</u>.

Sincerely,

Λ 0

Patrice M. Ashfield Field Office Supervisor



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate John Kessler, Chief 2045 Morse Road – Bldg. E-2 Columbus, OH 43229 Phone: (614) 265-6649 Fax: (614) 267-4764

January 21, 2020

Cori Jansing Cardno 11121 Canal Road Cincinnati, Ohio 45241

Re: 19-741; F3886 Port Union to Muhlhauser Rebuild

Project: The proposed project invovles the removal and replacement of 17 existing structures with updated engineered steel monopoles.

Location: The proposed project is located in the City of Fairfield and West Chester Township, Butler County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has no records at or within a onemile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

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

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (Myotis sodalis), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (Carya ovata), shellbark hickory (Carya laciniosa), bitternut hickory (Carya cordiformis), black ash (Fraxinus nigra), green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana), shingle oak (Ouercus imbricaria), northern red oak (Quercus rubra), slippery elm (Ulmus rubra), American elm (Ulmus americana), eastern cottonwood (Populus deltoides), silver maple (Acer saccharinum), sassafras (Sassafras albidum), post oak (Quercus stellata), and white oak (Quercus alba). Indiana bat roost trees consists of trees that include dead and dving trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, and the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet fields and meadows. Due to the location and the type of habitat present at the project site, and within the vicinity of the project area, this project is not likely to impact this species.

The project is within the range of the cave salamander (*Eurycea lucifuga*), a state endangered species. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). Due to the location and the type of habitat present at the project site, and within the vicinity of the project area, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community %20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or <u>Sarah.Tebbe@dnr.state.oh.us</u> if you have questions about these comments or need additional information.

Mike Pettegrew Environmental Services Administrator (Acting) This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

2/21/2020 10:01:03 AM

in

Case No(s). 20-0346-EL-BLN

Summary: Application of Duke Energy Ohio, Inc. Port Union to Mulhauser Rebuild Project-Part 2 electronically filed by Carys Cochern on behalf of Duke Energy