EXHIBIT 13

Wetland and Waterbody Delineation Report

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Clark County, Ohio

Prepared for

FirstEnergy®

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ch2m:

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Acronyms and Abbreviations

ATSI	American Transmission Systems, Incorporated
CH2M	CH2M HILL Engineers, Inc.
CWA	Clean Water Act
ESC	Environmental Survey Area
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
kV	Kilovolt
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
PHWH	Primary Headwater Habitat
Project	Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project
PSS	Palustrine scrub-shrub
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
TNW	Traditionally navigable water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 Introduction

This wetland and waterbody delineation report (Report) summarizes the results of the wetland and waterbody delineation surveys conducted in Clark County, Ohio by CH2M HILL Engineers, Inc. (CH2M), now part of Jacobs Engineering Group, Inc., for American Transmission Systems, Incorporated (ATSI), a subsidiary of FirstEnergy Corporation (FirstEnergy). ATSI is proposing to replace the insulators on existing wood poles and replace select wood poles associated with the Clark-Green 138 kilovolt (kV) Transmission Line Insulator & Pole Replacement Project (Project), an approximately eight-mile long 138 kV overhead electric transmission line. The Project originates at the Clark Substation near the intersection of US-40 and US-68 on the west side of Springfield, Ohio, and extends south and east to existing structure 5546 located east of Possum Road, southeast of Springfield, Ohio as shown on Overview Figure (Figure 1). CH2M conducted environmental surveys from August 22nd through August 25th, 2017. The environmental survey corridor (ESC) included the existing right-of-way (ROW), potential access routes, and temporary laydown yard.

This wetland and waterbody delineation report contains the following components:

- Figure 1 provides an overview map of the ESC overlain on ArcGIS Online USA topographic maps.
- Figures 2-A through 2-H show U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, the location of National Wetland Inventory (NWI) polygons and national hydrography dataset (NHD) streams. Table 3-1 lists the soils types identified within the ESC and Table 3-2 list the NWI wetland types identified within the ESC.
- Figures 3-A through 3-H provide Federal Emergency Management Agency (FEMA) 100-year floodplain and floodway information.
- Figures 4-A through 4-S provide the location of all features mapped during the delineation by CH2M biologists within the ESC. This includes all wetlands, data points, waterbodies, and ponds. Tables 4-1 (wetlands), 4-2 (streams), 4-3 (ponds), provides detailed information for all delineated features within the ESC. Tables 4-4 (wetlands), 4-5 (streams), and 4-6 (ponds) provides summary information for all delineated features within the ESC.
- U.S. Army Corps of Engineers (USACE) wetland determination field data forms are in Appendix A.
- Ohio Rapid Assessment Method for Wetlands (ORAM) two-page forms are in Appendix B.
- Primary Headwater Habitat Evaluation Index (HHEI) stream data forms for each stream identified with a drainage area less than 1 square mile are in Appendix C.
- Qualitative Habitat Evaluation Index (QHEI) stream data forms for each stream identified with a drainage area of 1 square mile or greater are in Appendix D.
- CH2M Open Water/Pond data forms for each open water feature identified within the ESC are in Appendix E.
- Representative photographs for all delineated features within the ESC are in Appendix F.

2 Background Information

This section describes the ESC and methodology used during the wetland and waterbody delineation field surveys.

2.1 Project Area

The Project is located within Clark County, Ohio, around the west, south and southeast of the City of Springfield, Ohio. The ESC begins at the Clark Substation near Lodge Road (39.922845 latitude, -83.853569 longitude) and extends generally south and east terminating at structure 5546 located east of Possum Road (near 39.886881 latitude, -83.749095 longitude) as shown in Figure 1. The ESC is approximately eight miles long and is 100 feet wide within the Project right-of-way (ROW), and also contains multiple proposed off-ROW access routes and a temporary construction laydown yard area.

Review of the USGS 7.5 minute topographic maps of the area indicates that multiple ditches, streams, and rivers drain the ESC, including the Mad River, Mill Creek, and multiple unnamed tributaries of these waterways. Topographic relief is limited to relatively gradual elevation changes, with elevations ranging between 900 feet and 1,050 feet above sea level throughout the ESC (Figure 1).

Land use and natural communities observed within the ESC includes agricultural land, recreational park land, existing roadway, industrial/substation, residential, old field, upland scrub shrub, urban developed/commercial, palustrine emergent (PEM) wetland, and palustrine scrub-shrub (PSS) wetland, in addition to the previously identified waterbodies.

2.1.1 Annual Precipitation

Recent rainfall data for Dayton, Ohio was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Dayton, Ohio was the nearest weather station with both historical and recent precipitation records. Rainfall recorded in Dayton, Ohio was normal for all months of 2017 through July. It appears that through August 21st, the month of August could experience below normal or normal precipitation amounts (Table 2-1; USDA, 2017). This data suggests climatic conditions were generally wetter than normal for 2017 leading up to the ecological survey. This was taken into consideration during the delineation.

TABLE 2-1: Recent Precipitation Data

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

2017 Precipitation Data	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug[4]	Total
Dayton Monthly Sum [1, 3]	3.42	1.52	4.95	5.46	6.5	7.43	4.8	1.03	35.11
Dayton Normal Precip. [2, 3]	2.71	2.24	3.34	4.09	4.66	4.17	4.11	2.99	28.31
Monthly climatic condition	Above Normal	Below Normal	Above Normal	Above Normal	Above Normal	Above Normal	Above Normal	Below Normal	Above Normal

[1]Monthly weather summary from weather station CF6DAY, 2017 (Dayton, OH)

[2]USDA WETS Station Climate Data 1971-2000 (Fort Wayne, IN (USDA 2000)

[3]Displayed in inches

[4]Through August 21st

2.1.2 Drainage Basins

The ESC is within the Upper Great Miami, Indiana, Ohio (05080001) and Little Miami (05090202), 8-digit Hydrologic Unit Codes (HUC). The ESC crosses four 12-digit HUCs, as outlined in Table 2-2 (USGS, 2017):

TABLE 2-2: HUCs Crossed by the Project

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

HUC 12-Digit Code	HUC 12-Digit Name
05080001-18-06	Rock Run - Mad River
05080001-18-05	Mill Creek
05080001-18-02	City of Springfield - Buck Creek
05090202-01-03	North Fork Little Miami River

Source: USGS 2017

2.1.3 Traditional Navigable Waters

The U.S. Environmental Protection Agency (EPA) and USACE assert jurisdiction over "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide" (USACE and EPA, 2008). These waters are considered traditionally navigable waters (TNW). The ESC crosses one TNW water, the Mad River (USACE, 2009). Many of the streams in the ESC are tributaries of the Mad River.

3 Wetland and Waterbody Delineation

3.1 Desktop Review

Prior to conducting the field investigations, CH2M reviewed the following resources to identify the potential for wetlands within the ESC:

- Aerial photo-based maps (ArcGIS Online, World Imagery Map, 2017)
- Topographic maps (ArcGIS Online, USA Topo Maps, 2017)
- NRCS Web Soil Survey (NRCS, 2016)
- NWI shapefile (USFWS, 2017)
- National Hydrography Dataset (NHD) (USGS, 2017)

According to the NRCS soil survey of Clark County (NRCS, 2017), 33 soil map units are crossed by the ESC. Of the 33 soil map units, two are listed as hydric, five predominantly hydric; seven predominantly non-hydric, and the remaining 19 units are listed as not hydric (Figure 2-A to 2-H; Table 3-1). NRCS data indicated that predominantly non-hydric soils and not hydric soils comprise approximately 88 acres, which is 77 percent of the ESC. Approximately 22 acres or 19 percent of land cover in the ESC is comprised of predominately hydric soils; while approximately 4 acres or 4 percent of the ESC is comprised of all hydric soils.

Generally, hydric soils are those soils that indicate through their color and structure that they have experienced dominantly reducing (i.e. oxygen poor) conditions. Oxygen-poor conditions result from inundation and/or saturation by water. Partially hydric soils have both hydric and non-hydric soil components identified in the mapped soil unit.

NWI data was obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2017) identifies the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The NWI data indicated that 11 NWI features are within the ESC (Figure 3-A to 3-H; USFWS 2017): one palustrine unconsolidated bottom (PUBGx) feature, two PEM wetland features (PPEM1C, PEM1Ch), two riverine unconsolidated bottom (R2UBH, R5UBH) features, and one riverine streambed class (R4SBC). The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The information on NWI maps is obtained largely from aerial interpretation, may be outdated, and is only sporadically field-checked. Additional detail regarding the mapped NWI wetlands within the ESC is provided in Table 3-2.

TABLE 3-2: Mapped National Wetland Inventory Features

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Wetland Type[1]	Mapped NWI Features	Acreage within ESA
PEM1C	4	2.19
PEM1Ch	1	0.73
PUBGx	1	0.15
R2UBH	1	0.35
R4SBC	2	0.30
R5UBH	2	0.28
Overall Total	**11**	**4.00**

[1]Cowardin et al. 1979.

As shown on the FEMA floodplain panels (Figures 4-A to 4-H), the ESC crosses the FEMA-mapped 100-year floodplains of four streams (FEMA, 2017):

- Mad River (Stream CG-01)
- Unnamed tributaries to Mill Creek (Streams CG-02, 03, and 04)

3.2 Field Survey Methodology

From August 22nd through 25th, 2017, CH2M biologists surveyed the ESC by walking the corridor and evaluating for wetlands and other waters of the U.S. The boundaries of each wetland and waterbody within the ESC were delineated and recorded using handheld global positioning system (GPS) units. For waterbodies identified within the Project area, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

Wetland, stream, and pond data was recorded on USACE Regional Supplement wetland determination data forms, Headwater Habitat Evaluation Index (HHEI) forms and Qualitative Habitat Evaluation Index (QHEI) forms, and CH2M standard open water/pond data forms, respectively. All other land use, habitat, and other supplemental data was collected in a field notebook during the environmental survey.

3.2.1 Wetland Delineation

Wetland boundaries were field-delineated according to Section 404 of the Clean Water Act (CWA) and the routine onsite methodology described in the Technical Report Y-87-1 *Corps of Engineers' Wetlands Delineation Manual* and subsequent guidance documents (USACE, 1987) and according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010). Wetland delineation data was recorded on the USACE Regional Supplement wetland determination data forms. Representative wetland and upland data points were recorded during the wetland delineation to determine the presence/absence of wetlands and/or document upland conditions within the Project area. Upland data points were determined not to be within wetlands because they did not have positive indicators of one or more of the three wetland criteria: hydrophytic vegetation, wetland hydrology, and hydric soils.

3.2.1.1 Soils

CH2M biologists examined soils using a hand auger to extract soil cores, which were examined for hydric soil characteristics. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 1988) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (USACE, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

3.2.1.2 Hydrology

The *1987 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season. Areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands. The *Regional Supplement* states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year; (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-in. depth is 41 degree Fahrenheit (°F) or higher) as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The soils and ground surface were examined by CH2M biologists for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplement*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as, drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2011).

3.2.1.3 Vegetation

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the 2016 National List of Plant Species that Occur in Wetlands: Region 1 (Region 1 encompasses the state of Ohio). An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation.

Wetland quality was evaluated using the Ohio Environmental Protection Agency (OEPA) Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000). Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under ORAM v5.0 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between “Categories 1 and 2” from 30 to 34.9 and between “Categories 2 and 3” from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower category (Mack, 2001).

According to recent guidance from the USEPA and USACE, wetlands that are adjacent to or have a significant nexus to TNWs are regulated under Sections 401 and 404 of the CWA (USEPA and USACE, 2008). A significant nexus must meet criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. A significant nexus includes consideration of both hydrologic and ecologic factors. The ESC crosses the Mad River which is a TNW. All of the streams in the ESC are tributaries to the Mad River, which eventually flows into the Ohio River.

3.2.2 Stream Assessment

Jurisdictional streams were identified as those waters that possessed a continuously defined bed and bank, OHWM indicators, and lacked a dominance of upland vegetation in the channel. Per USACE guidance, the OHWM is defined as the “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” (USACE, 2005). Channels that parallel a roadway or railroad were identified as upland drainage features and were not considered to be jurisdictional unless they had an identifiable OHWM, were identified on the USGS topographic map, or represented a presumed relocation of a natural channel.

During the field survey, functional stream assessments were conducted using the methods described in the OEPA’s Methods for Assessing Habitat in Flowing Waters: Using OEPA’s *Qualitative Habitat Evaluation Index*

(OEPA, 2006) and in the OEPA's Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (OEPA, 2002). The Qualitative Habitat Evaluation Index (QHEI), is used to characterize larger streams (drainage areas greater than 1 square mile), while the Primary Headwater Habitat Evaluation Index (HHEI) is appropriate for first-order and second-order headwater streams (drainage areas less than 1 square mile).

4 Field Survey Results

CH2M biologists surveyed the ESC from August 22nd through 25th, 2017, by walking the corridor and evaluating for wetlands and other waters of the U.S. A total of 17 wetlands, 12 streams, and one pond were delineated within the ESC. The features identified within the ESC are displayed and identified on the Wetlands and Waterbodies Delineation Map (Figure 4-A to Figure 4-S).

Detailed information for wetland and waterbody features within the ESC is provided in Tables 4-1, 4-2, and 4-3 respectively. CH2M has made preliminary determinations concerning the likely jurisdiction of these wetlands and waterbodies; however, the USACE and OEPA make the final determination of hydrologic connectivity.

4.1 Wetlands

Seventeen wetlands totaling 4.08 acres, ranging in size from less than 0.03 to 1.28 acres, were delineated within the ESC and are depicted in Figures 4A-4S. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. Of the 17 wetlands, 16 wetlands were identified as PEM wetlands, and one as a PSS wetland. Detailed information for each delineated wetland within the ESC is provided in Table 4-1, however a summary of the delineated wetlands is provided in Table 4-4.

TABLE 4-4: Wetland Summary Table

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Wetland Type	ORAM Category			Number of Wetlands	Acreage within ESA
	Category 1	Category 2	Category 3		
PEM	13	3	0	16	3.68
PSS	0	1	0	1	0.40
Totals	**13**	**4**	**0**	**17**	**4.08**

[1]This acreage only corresponds to the area delineated within the environmental survey area.

[2]Final determination of jurisdictional status lies with the USACE, Louisville District.

Additionally, CH2M commonly separates wetlands where there is an obvious change between Cowardin wetland types. This split results in each wetland section being assessed independently; however, CH2M recognizes that the split wetland components are of a larger wetland complex.

Of the 17 wetlands, all but four (Wetland CG-4, 7, 13, and 17) of the wetlands appear to be hydrologically connected to surface waters that are tributaries to the Mad River, and therefore will likely be considered jurisdictional by the USACE. Wetlands CG-4, 7, 13, and 17 appear to be small PEM wetlands with no outlet observed or any other features near the wetland. Completed USACE wetland and upland determination forms are provided in Appendix A. Representative photographs were taken of each wetland during the field survey and are provided in Appendix F.

4.1.1 Wetland ORAM Results

A total of 13 Category 1 wetlands and four Category 2 wetlands were identified within the ESC. No Category 3 wetlands were identified within the ESC. Table 4-4 provides additional summary information regarding wetlands identified within the ESC. Completed ORAM forms are included in Appendix B.

A total of 13 Category 1 wetlands were identified within the ESC. All of the 13 Category 1 wetlands were classified as PEM wetlands. These wetlands were classified as Category 1 wetlands based on the ORAM scores (ranging from 8.5 to 26). Generally, these wetlands scored low due to a variety of factors such as small size,

intensity of surrounding land use, narrow buffer areas, disturbance to soils and hydrology, the lack of second growth vegetation, and the presence of invasive species.

Four Category 2 or wetlands were identified within the ESC, including three PEM wetlands, and one PSS wetland. These wetlands were classified as Category 2 wetlands based on the ORAM scores (ranging from 33.5-41). Generally, the Category 2 wetlands exhibited medium upland buffers, very low to moderately high intensive surrounding land use (e.g. second growth forest, residential, fenced pasture), sparse to moderate percentage of invasive species, and had habitat and hydrology generally recovered or recovering from previous manipulation due to clearcutting, shrub/sapling removal, and other disturbances, or with no disturbance at all.

No high-quality Category 3 wetlands were identified within the ESC.

4.2 Streams

A total of 12 streams, totaling 2,086 linear feet, were identified within the ESC as shown in Figures 4A-4S. Of the 12 streams, one stream was identified as an ephemeral stream, five were intermittent streams, and six were perennial streams. Seven streams were assessed using the HHEI methodology (drainage area less than 1 mi^2) and four streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2). One large stream (Stream CG-1; Mad River) totaling approximately 147 linear feet was not evaluated using the QHEI or HHEI methodology since the stream is a TNW.

These streams appear to have significant nexus with a TNW and are therefore likely to be considered jurisdictional by the USACE. It is noted that the USACE will make the final determination of significant nexus with a TNW. The Mad River is crossed by the ESC and is considered a TNW (USACE 2016). Completed QHEI and HHEI forms are provided in Appendix C and D, respectively. Representative photographs were taken of each stream during the field survey and are provided in Appendix F.

4.2.1 QHEI Results

Four streams, totaling 482 linear feet, within the ESC were evaluated using the QHEI methodology. All four of the stream habitats assessed were Good Warmwater streams. Table 4-5 provides QHEI results for streams identified within the ESC. Completed QHEI forms are included in Appendix C.

TABLE 4-5: QHEI Summary Table

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Flow Regime	QHEI Narrative Category					Number of Streams	Length (feet) within ESC
	Very Poor Warmwater	Poor Warmwater	Fair Warmwater	Good Warmwater	Excellent Warmwater		
Intermittent	0	0	0	1	0	1	130
Perennial	0	0	0	3	0	3	352
Total	0	0	0	**4**	0	**4**	**482**

[1]The length only corresponds to the linear feet delineated within the environmental survey area.

[2]Final determination of jurisdictional status lies with the USACE, Huntington District.

4.2.2 HHEI Results

Seven headwater streams, totaling 1,457 linear feet, within the ESC were evaluated using the HHEI methodology. These streams were classified as two Modified Class 1 streams, and five Modified Class 2 streams. Table 4-6 provides a summary of the HHEI results for streams identified within the ESC, and completed HHEI forms are provided in Appendix D. Representative photographs of the streams were taken during the field survey and are provided in Appendix F.

TABLE 4-6: HHEI Summary Table

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Flow Regime	HHEI Class					Number of Streams	Length (feet) within ESC
	Class 1	Modified Class 1	Class 2	Modified Class 2	Class 3		
Ephemeral	0	1	0	0	0	1	102
Intermittent	0	1	0	3	0	4	1,096
Perennial	0	0	0	2	0	2	259
Total	**0**	**2**	**0**	**5**	**0**	**7**	**1,457**

[1]This length only corresponds to the linear feet delineated within the environmental survey area.

[2]Final determination of jurisdictional status lies with the USACE, Huntington District.

4.3 Ponds/Open Water

One pond, Pond CG-1, was identified within the ESC and can be found on Figure 4L. Pond CG-1 was observed to be a manmade pond utilized for stormwater retention and/or recreational uses, and receives runoff from the surrounding uplands. More detailed information on pond conditions can be found in Appendix E. Representative photographs of ponds can be found in Appendix F.

5 Conclusion

CH2M conducted an environmental survey of the Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project on August 22nd through August 25th, 2017. A total of 17 wetlands, 12 streams, and one ponds were delineated within the environmental survey corridor. The 17 wetlands totaling 4.08 acres within the ESC were identified as two different wetland habitat types which included 16 PEM wetlands, and one PSS wetland. Of the 17 wetlands, 13 wetlands were identified as Category 1 wetlands and four wetlands were identified as Category 2 wetlands. No Category 3 wetlands were identified within the ESC.

The 12 streams totaling 2,086 linear feet identified within the ESC include one ephemeral stream, five intermittent streams, and six perennial streams. Seven streams were assessed using the HHEI methodology (drainage area less than 1 mi^2) and four streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2). One large stream (Stream CG-01; Mad River) was not evaluated since the stream is a TNW.

It is anticipated that the USACE will assert jurisdiction over all but four of the wetland crossings and all of the stream crossings identified due to their connection or proximity to the Mad River (or its tributaries), a TNW. CH2M has made preliminary determinations concerning the likely jurisdiction of all assessed features; however, the USACE will make the final determination. Further coordination with the USACE is recommended prior to the submittal of any permit or construction activities.

The results of the environmental resource survey described in this report conducted by CH2M are limited to the what was identified within the ESC, and depicted in Figure 4A to 4S. The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this report may likely not constitute the actual impacts of the Project at the time of construction. If permits are determined to be necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

The aquatic resources field survey results presented within this report apply to the site conditions at the time of our assessment. Changes within the environmental survey area that may occur with time due to natural processes or human impacts at the project site or on adjacent properties, could invalidate the findings of this report, especially if CH2M is unaware and has not had the opportunity to revisit the Project survey area. Additionally, changes in applicable standards and regulations may also occur as a result of legislation or the expansion of knowledge over time. Therefore, the findings of this aquatic resources report may be invalidated, wholly or in part, by changes that are beyond the control of CH2M.

6 References

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

Federal Emergency Management Agency (FEMA). 2017. Flood Map Service Center. Accessed January 2018. https://msc.fema.gov/portal/search#searchresultsanchor

Kollmorgen Corporation. 1988. Munsell Soil Color Charts. Baltimore, Maryland.

Mack, John J. 2001. Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio.

NOAA. 2017. Monthly Weather Summary. Dayton. http://www.nws.noaa.gov/climate/index.php?wfo=iln. Accessed August 22, 2017.

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

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

Ohio Environmental Protection Agency (OEPA). 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI). OHIO EPA Technical Bulletin EAS/2006-06-1.

U.S. Army Corps of Engineers (USACE). 1987. Technical Report Y-87-1, *Corps of Engineers' Wetlands Delineation Manual.*

U.S. Army Corps of Engineers (USACE). 2005. Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification. http://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf. Accessed August 22, 2017.

U.S. Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/ED TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA). 2008. Memorandum *"Revised Guidance on Clean Water Act Jurisdiction Following the Supreme Court Decision in Rapanos v. U.S. and Carabell v. U.S."* http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa_guide/cwa_juris_2dec08.pdf. Accessed August 23, 2016.

U.S. Army Corps of Engineers (USACE). 2009. Approved Jurisdictional Determination Form, 2009-471-GMR-RR1-Mad River-TNW. http://www.lrh.usace.army.mil/Portals/38/docs/regulatory/2009-471-GMR-RR1-Mad_River-TNW_.pdf. Accessed August 22, 2017.

U.S. Department of Agriculture (USDA). 2017. USDA Field Office Climate Data: Dayton International Airport WETS Station, 1981-2010. Accessed August 2017. http://agacis.rcc-acis.org/?fips=39113

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2016. Soil Survey Geographic (SSURGO) database for Clark County, Ohio. http://SoilDataMart.nrcs.usda.gov/. Accessed December 2017.

U.S. Fish and Wildlife Service (USFWS). 2017. National Wetlands Inventory. http://www.fws.gov/wetlands/Wetlands-Mapper.html. Accessed December 2017.

U.S. Geological Survey (USGS). 2017. National Hydrography Dataset, Ohio. http://nhd.usgs.gov/data.html. Accessed December 2017.

Tables

TABLE 3-1: Mapped Soil Units

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Symbol	Description	Hydric Classification
Ae	Adrian muck, undrained	All Hydric
CeB	Celina silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric
CrA	Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	Predominantly Non-Hydric
DpF	Donnelsville-Rock outcrop complex, 30 to 70 percent slopes	Not Hydric
EmB	Eldean silt loam, 2 to 6 percent slopes	Not Hydric
EpB2	Eldean-Miamian complex, 2 to 6 percent slopes, eroded	Not Hydric
EpC2	Eldean-Miamian complex, 6 to 12 percent slopes, eroded	Predominantly Non-Hydric
EpC3	Eldean-Miamian complex, 6 to 12 percent slopes, severely eroded	Not Hydric
EpD2	Eldean-Miamian complex, 12 to 18 percent slopes, eroded	Not Hydric
Ko	Kokomo silty clay loam, 0 to 2 percent slopes	Predominantly Hydric
Lh	Linwood mucky silt loam, drained	All Hydric
MhA	Miamian silt loam, 0 to 2 percent slopes	Not Hydric
MhB	Miamian silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	Predominantly Non-Hydric
MhC2	Miamian silt loam, 6 to 12 percent slopes, eroded	Not Hydric
MkB2	Miamian silty clay loam, 2 to 6 percent slopes, eroded	Not Hydric
MkC2	Miamian silty clay loam, 6 to 12 percent slopes, eroded	Not Hydric
MkD2	Miamian silty clay loam, 12 to 18 percent slopes, eroded	Not Hydric
MmC3	Miamian clay loam, shallow to dense till substratum, 6 to 12 percent slopes, severely eroded	Not Hydric
MnB	Miamian-Urban land complex, 2 to 6 percent slopes	Not Hydric
Mo	Milford silty clay loam, sandy substratum	Predominantly Hydric
Ms	Millsdale silty clay loam, 0 to 2 percent slopes	Predominantly Hydric
MtA	Milton silt loam, 0 to 2 percent slopes	Not Hydric
MtB	Milton silt loam, 2 to 6 percent slopes	Not Hydric
MxB	Milton-Urban land complex, 2 to 6 percent slopes	Not Hydric
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	Not Hydric
Ph	Pits, quarry	Not Hydric
Rn	Ross silt loam, occasionally flooded	Predominantly Non-Hydric
So	Sloan silt loam, sandy substratum, occasionally flooded	Predominantly Hydric
ThA	Thakery silt loam, 0 to 2 percent slopes	Not Hydric
Ts	Tremont silt loam, occasionally flooded	Predominantly Non-Hydric
Ud	Udorthents, loamy	Not Hydric
Wt	Westland silty clay loam, Southern Ohio Till Plain, 0 to 2 percent slopes	Predominantly Hydric

Table 4-1: Detailed Delineated Wetland Table

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Wetland ID	Location		Wetland Type[1]	Area (ac)[2]	ORAM Score/Category	Jurisdictional Status[3]	Connecting Waterbody
	Latitude	Longitude					
Wetland CG-01	39.918056	-83.850324	PEM	0.06	36/Category 2	Connected	Mad River via backwater
Wetland CG-02	39.915811	-83.849626	PEM	0.17	20.5/Category 1	Connected	Mad River
Wetland CG-03	39.913738	-83.848558	PEM	0.22	24.5/Category 1	Connected	Mad River via Mill Creek
Wetland CG-04	39.911784	-83.847431	PEM	0.03	20.5/Category 1	Isolated	None apparent
Wetland CG-05	39.910125	-83.846702	PSS	0.40	41/Category 2	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-06	39.900172	-83.839821	PEM	0.10	26/Category 1	Connected	Mad River via Mill Creek
Wetland CG-07	39.897308	-83.839461	PEM	0.05	8.5/Category 1	Isolated	None apparent
Wetland CG-08	39.892614	-83.834100	PEM	0.43	34.5/Category 2	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-09	39.891992	-83.832835	PEM	0.03	13/Category 1	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-10	39.889845	-83.829938	PEM	0.84	21.5/Category 1	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-11	39.889115	-83.827669	PEM	0.14	18/Category 1	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-12	39.891489	-83.814505	PEM	1.28	33.5/Category 2	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-13	39.890382	-83.801818	PEM	0.02	13/Category 1	Isolated	None apparent
Wetland CG-14	39.890784	-83.766570	PEM	0.05	25/Category 1	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-15	39.890814	-83.766295	PEM	0.10	20.5/Category 1	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-16	39.889299	-83.765280	PEM	0.11	22.5/Category 1	Connected	Mad River via Mill Creek and offsite streams
Wetland CG-17	39.888924	-83.763430	PEM	0.05	22/Category 1	Isolated	None apparent
WETLAND ACREAGE SUBTOTAL	**4.08**						

TABLE 4-2: Detailed Delineated Stream Table

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Stream ID	Waterbody Name[1]	Location		Flow Regime[2]	Linear Feet[3]	Average OHWM Width (Feet)	Average TOB Width (Feet)	HHEI/ QHEI Score	Class/Designation	TNW Connection
		Latitude	Longitude							
Stream CG-01	Mad River	39.917341	-83.850142	Perennial	147	90	110	NA	Warmwater	Mad River
Stream CG-02	UNT to Mill Creek	39.914462	-83.848847	Ephemeral	102	1	1.5	15	Modified Class 1	Mad River
Stream CG-04	UNT to Mill Creek	39.908058	-83.846897	Perennial	156	18	20	43	Modified Class 2	Mad River
Stream CG-03	UNT to Mill Creek	39.910361	-83.846831	Intermittent	130	3.5	4.5	65	Good Warmwater	Mad River
Stream CG-05	UNT to Mill Creek	39.904343	-83.843942	Perennial	104	8	13	61.5	Good Warmwater	Mad River
Stream CG-06	UNT to Mill Creek	39.900309	-83.839783	Perennial	133	8	13	61.5	Good Warmwater	Mad River
Stream CG-07	UNT to Mill Creek	39.892594	-83.833891	Perennial	114	4	6	57	Good Warmwater	Mad River
Stream CG-08	UNT to Mill Creek	39.89154	-83.814954	Intermittent	305	2	4	16	Modified Class 1	Mad River
Stream CG-09	Unnamed	39.890745	-83.767295	Perennial	102	6	15	65	Modified Class 2	N/A
Stream CG-10	Unnamed	39.890772	-83.766584	Intermittent	116	3	5	36	Modified Class 2	N/A
Stream CG-11	Unnamed	39.889138	-83.765165	Intermittent	112	1.5	20	36	Modified Class 2	N/A
Stream CG-12	Unnamed	39.887698	-83.755286	Intermittent	563	3	6	35	Modified Class 2	N/A
CUMULATIVE STREAM LENGTH					**2,086**					

[1]UNT = unnamed tributary.

[2]Flow regime is defined as perennial, intermittent, or ephemeral. This determination was interpreted using field observations and USGS topographic maps as appropriate.

[3]Stream length within the environmental survey area.

TABLE 4-3: Detailed Delineated Pond Table

Clark-Green 138 kV Transmission Line Insulator & Pole Replacement Project

Pond ID	Location		Area (ac)[1]	Jurisdictional Status[2]	Connecting Waterbody
	Latitude	Longitude			
Pond CG-01	39.890060	-83.795577	0.15	Isolated	N/A
CUMULATIVE POND AREA			**0.15**		

[1]This acreage only corresponds to the area delineated within the environmental survey area.

[2]Final determination of jurisdictional status lies with the USACE, Louisville District.

Summary: Letter of Notification Application for a Certificate of Environmental Compatibility and Public Need (Part 3 of 10) electronically filed by Mr. Robert J Schmidt on behalf of American Transmission Systems Inc.