AMERICAN TRANSMISSION SYSTEMS, INCORPORATED
A FIRSTENERGY COMPANY

LETTER OF NOTIFICATION

KIRBY-ROBERTS 138 kV TRANSMISSION LINE LOOP TO CRISSINGER SUBSTATION

OPSB CASE NO.: 19-0803-EL-BLN

April 15, 2019

American Transmission Systems, Incorporated
76 South Main Street
Akron, Ohio 44308

LETTER OF NOTIFICATION
KIRBY-ROBERTS 138 kV TRANSMISSION LINE
LOOP TO CRISSINGER SUBSTATION PROJECT

The following information is being provided in accordance with the procedures in the Ohio Administrative Code (OAC) Chapter 4906-6 for the application and review of Accelerated Certificate Applications. Based upon the requirements found in Appendix A to OAC Rule 4906-1-01, this Project qualifies for submittal to the Ohio Power Siting Board ("Board") as a Letter of Notification application.

4906-6-05: ACCELERATED APPLICATION REQUIREMENTS

4906-6-05: Name

Name of Project: Kirby-Roberts 138 kV Transmission Line Loop to Crissinger Substation Project ("Project").

4906-6-05 (B)(1): Brief Description of the Project

In this Project, American Transmission Systems, Incorporated ("ATSI"), a FirstEnergy company, is proposing to construct approximately 6,900 feet (1.31 miles) of new transmission line to loop the existing Kirby-Roberts 138 kV Transmission Line into the existing Crissinger Substation. In addition, the Project will expand the Crissinger Substation from a four (4) breaker ringbus configuration to a six (6) breaker ringbus configuration requiring an approximately 11.8% expansion of the substation.

The existing Kirby-Roberts 138 kV Transmission Line will be looped into the Crissinger Substation creating two new transmission lines, the Crissinger-Kirby 138 kV Transmission Line and the Crissinger-Roberts #2 138 kV Transmission Line. The new transmission line will begin at existing Structure 3014. The existing Kirby-Roberts 138 kV Transmission Line attaches to this structure along with the existing Crissinger-Tangy 138 kV Transmission Line. This Project will remove the existing spans on the Kirby-Roberts 138 kV Transmission Line between existing Structure 11732 and Structure 5031. Once removed, a new mid-span structure and conductor will be placed between the

existing structure 11732 and proposed structure 11734, and new conductor will be placed between proposed structure 11734 and existing structure 5031.

The new Crissinger-Kirby 138 kV Transmission Line will connect from Structure 11732, which is to be reinforced with new guying, to a new single circuit wood pole Structure 11733. This transmission line will then join the new Crissinger-Roberts #2 138 kV Transmission Line on a double circuit wood pole Structure 11734 and continue east for approximately 5,490 feet (1.04 miles) to Structure 11755 where the Crissinger-Roberts #2 138 kV Transmission Line crosses underneath the Crissinger-Kirby 138 kV Transmission Line. From here the Crissinger-Roberts #2 138 kV Transmission Line continues east for an additional 440 feet (0.08 miles) until it reaches Crissinger Substation. The Crissinger-Kirby 138 kV Transmission Line continues northeast and then south for approximately 610 feet (0.12 miles) until it reaches Crissinger Substation.

Crissinger Substation will be expanded by approximately 11.8% of the existing area to accommodate the expansion of the ring bus. The existing fenced area is approximately 74,860 square feet. Approximately 8,861 square feet of new fenced area will be added to the substation. Approximately 78 linear feet of new fence will be added.

The general location of the Project is shown in Exhibit 1, a partial copy of the United States Geologic Survey, Marion County OH, Quad Map, ID number 40083-E2. Exhibit 2 is a partial copy of Bing aerial imagery. The Project is located near Crissinger Substation at 1734 Crissinger Rd, Marion, OH 43302. The general layout is shown in Exhibit 3. The Project is located in Pleasant Township, Green Camp Township, and Marion Township, Marion County, Ohio.

4906-6-05 (B)(1): Letter of Notification Requirement

The Project meets the requirements for a Letter of Notification because the Project is within the types of projects defined by Item (1)(b) of the Application Requirement Matrix for Electric Power Transmission Lines, Appendix A of OAC Rule 4906-1-01. This item states:

(1) New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distribution line(s) for operating at a higher transmission voltage, as follows:

(b) Line(s) greater than 0.2 miles in length but not greater than two miles in length.

The proposed Project is within the requirements of Item (1)(b) as it involves constructing approximately 1.31 miles of new transmission line. The substation expansion is jurisdictional under Item (4)(a) which states:

(4) Constructing additions to existing electric power transmission stations or converting distribution stations to transmission stations where:

(a) There is a twenty percent or less of the fenced area.

The Proposed substation expansion will require an expansion of approximately 11.8% of the fenced area. This meets the requirements of a Construction Notice filing if it were to be filed separately. It is included with the transmission line portion of the work here since the two projects have the same need and will begin construction at approximately the same time.

4906-6-05 (B)(2): Need For the Project

The proposed Project includes the expansion of the Crissinger 138 kV Substation in Marion, Ohio to allow for the utilization of existing open bay positions to add two breakers to expand the substation from a four-breaker ring bus to a six-breaker ring bus. The Project also includes the looping of the existing Kirby – Roberts 138 kV Line into Crissinger substation by adding approximately 1.2 miles of double circuit from the existing Kirby – Roberts 138 kV Line to Crissinger Substation. Currently the Kirby-

Roberts 138kV Transmission Line bypasses the Crissinger Substation. After the Project is complete, the 138 kV line exits out of the Crissinger substation will be:

- Crissinger – Roberts #1
- Crissinger – Roberts #2
- Crissinger – Tangy
- Crissinger – Kirby
- Crissinger – Transformer #1
- Crissinger – Transformer #2.

The expansion of the Crissinger Substation will provide an additional 138 kV source to the planning area and provide additional reliability and improved operational flexibility under system restoration and maintenance conditions. It will reduce the amount of local load loss in the area (approximately 99 MWs and 5,000 customers) and mitigate the potential local voltage collapse on the 34.5 kV sub-transmission system for the loss of the Crissinger-Roberts 138 kV line followed by the loss of the Crissinger-Tangy 138 kV line or the loss of the Crissinger-Tangy 138 kV line followed by the loss of the Crissinger-Roberts 138 kV line.

The loss of two 138 kV transmission lines, which is a defined as a NERC P6 (N-1-1) system contingency, can happen with the scheduled or unscheduled outage of the Crissinger-Roberts 138 kV line followed by an unforeseen or unplanned outage of the Crissinger-Tangy 138 kV line due to a storm or other unplanned event. This system contingency is also valid for the scheduled or unscheduled outage of the Crissinger-Tangy 138 kV line followed by the unforeseen or unplanned outage of the Crissinger-Roberts 138 kV line. The Project is designed to mitigate the impact of these defined system contingencies by providing an additional 138 kV source into the planning area and maintaining service to the 5,000 customers and approximately 99 MWs of load in the event of these contingences.

Over the past five years, the Crissinger-Roberts 138 kV line has experienced one sustained outage (1h 37m) and three momentary outages, and the Crissinger-Tangy 138 kV line has experienced two sustained outages (average duration 4.5m) and one momentary outage.

The alternative considered for this Project was to add another capacitor bank at Crissinger 138 kV substation. It was not selected because it was not a strong enough source to support the potential voltage drop and local voltage collapse on the 34.5 kV sub-transmission system under contingency conditions.

The Crissinger 138 kV Ring Bus Expansion Project was presented to PJM during the western sub-regional TEAC meeting on 08/31/2018 and was assigned the Supplemental RTEP number s1696. The slide from the PJM meeting this was presented at is included as Exhibit 4. The scheduled in-service date is 12/31/2019. This Project will be included in the 2019 Long Term Forecast Report.

4906-6-05 (B)(3): Location of the Project Relative to Existing or Proposed Lines

The location of the Project relative to existing or proposed lines is shown in the ATSI Transmission Network Map, included as part of the confidential portion of the FirstEnergy Corp. 2018 Long-Term Forecast Report. This map was submitted to the PUCO in Case No. 18-0449-EL-FOR under Rule 4901:5-5:04 (C)(2)(b) of the Ohio Administrative Code. The map is incorporated by reference only. This map shows ATSI's 345 kV and 138 kV transmission lines and transmission substations including the Kirby-Roberts 138 kV Transmission Line and Crissinger Substation. The project area is located approximately 4 $^{3}/_{10}$ inches (11" x 17" printed version) from the left edge of the map and approximately 6 inches (11" x 17" printed version) from the top of the map. The general location and layout of the project area is shown in Exhibit 1 and 2.

4906-6-05 (B)(4): Alternatives Considered

Alternatives to the proposed Project included the following:

- No Action – Continued operation of the system as currently configured does not reduce the risk of the loss of approximately 99 MW of load and corresponding loss of service to approximately 5,000 customers of FirstEnergy under contingency scenarios.

- Alterative to the ring bus expansion – An alternative to the ring bus expansion considered for the project was to add another capacitor bank at Crissinger 138 kV substation. It was not selected because it was not a strong enough source to support the potential voltage drop and local voltage collapse on the 34.5 kV sub-transmission system.
- Alternative transmission line design:

One alternative design of the transmission line extension that was considered was the conversion of the existing 6-wire configuration on the Crissinger-Tangy 138 kV Transmission Line to a 3-wire configuration to accommodate the new Crissinger-Kirby 138 kV Transmission Line. Under this alternative, the new Crissinger-Kirby 138 kV Transmission Line would have been on the north side of the existing towers and the Crissinger-Tangy 138 kV Transmission Line would have been on the south side of the towers. The new Crissinger-Roberts No. 2 138 kV Transmission Line would have followed the proposed double circuit path north of the existing centerline in a single circuit configuration.

This design was determined to be infeasible given the proposed configuration of Crissinger Substation for the Kirby and Tangy 138 kV Transmission Lines, which could not be switched without causing both proposed 138 kV circuits to cross outside of Crissinger Substation. To achieve this, two 3-pole structures with guying would be required in a span of approximately 480 feet. Furthermore, by converting the existing towers to double circuit operation with two 3-wire configurations, larger conductor would be required to satisfy current FirstEnergy protection specifications. A reconductor may have also resulted in the further need to reinforce or replace several, if not all, of the towers to account for any additional loading. Given the complications associated with this alternative, coupled with the need for and availability of the expanded right-of way to install the new line extension, the proposed solution is considered the best available option for the Project.

4906-6-05 (B)(5): Public Information Program

ATSI's manager of External Affairs will advise local officials of features and the status of the proposed Transmission Line Project as necessary. ATSI will maintain a copy of this Letter of Notification on FirstEnergy's website. Letters will be sent to affected property owners at least 7 days before construction begins on the Project informing them of the Project's start and a proposed timeframe of construction and restoration activities.

ATSI will publish notice of the Project in the Marion Star. Additionally, letters will be sent to affected property owners when this Letter of Notification application is submitted to the Board informing them of the Project.

4906-6-05 (B)(6): Construction Schedule

The construction schedule for this Project is expected to begin as early as May 13, 2019 and completed by December 31, 2019.

4906-6-05 (B)(7): Area Map

Exhibit 1 depicts the general location of the Project. This Exhibit provides a partial copy of the United States Geological Survey, Marion County OH, quadrangle map (Quad Order ID 40083-E2). Exhibit 2 provides a partial copy of Bing aerial imagery of the Project Area.

4906-6-05 (B)(8): Property Owner List

The Project is located on new and existing right-of-way and new right-of-way is required for the Project. The existing right-of-way is 100 feet wide. The new right-of-way will include an expansion of the existing right-of-way by 30 feet to the north. Table 1 contains a list of property owners effected by the project.

Table 1: Property Owner List

Parcel Number	Property Owner	Property Address	Easement Status
100040000400	Ohio Department of Natural Resources	2045 Morse Rd, Bldg C4, Columbus, OH 43229	New Easement Being Obtained
250110000400	Ohio Department of Natural Resources	2045 Morse Rd, Bldg C4, Columbus, OH 43229	Easement Obtained
250110000100	Pheasants Forever Inc.	1783 Buerkle Circle, St Paul, MN 55110	New Easement Being Obtained
250830600300	Ohio Edison	800 Cabin Hill Dr, Greensburg, PA 15601	Easement Obtained
250830600200	Ohio Edison	800 Cabin Hill Dr, Greensburg, PA 15601	Easement Obtained
170080004700	Beaver David D Etal	359 W Newmans Cardington Rd, Prospect, OH 43342	Easement Obtained
170080004600	Pheasants Forever Inc.	1783 Buerkle Circle, St Paul, MN 55110	Easement Obtained
170080004500	Clabaugh Lynn M Etal	Marion Green Camp Rd, Marion, OH 43302	Easement Obtained

4906-6-05 (B)(9): TECHNICAL FEATURES OF THE PROJECT

4906-6-05 (B)(9)(a): Operating Characteristics

The transmission line construction will have the following characteristics:

Transmission Line: Crissinger-Tangy

Voltage: 138 kV

Conductors: 6-Wire 336 kcmil 26/7 ACSR

Static Wire: 7#8 Alumoweld

Insulators: Polymer

Transmission Line:	**Crissinger-Kirby**
Voltage:	138 kV
Conductors:	795 kcmil 26/7 ACSR
Static Wire:	3#6 Alumoweld
Insulators:	Polymer
Transmission Line:	**Crissinger-Roberts #2**
Voltage:	138 kV
Conductors:	795 kcmil 26/7 ACSR
Static Wire:	3#6 Alumoweld
Insulators:	Polymer
ROW Width:	100 feet of existing 30 feet of new
Land Requirements:	N/A
Structure Types:	Exhibit 5: Vertical Double Circuit Horizontal Post Wood Pole Structure. Nineteen (19) structures are needed. Exhibit 6: Vertical Stacked Double Circuit Horizontal Post Wood Pole Structure. One (1) structure is needed. Exhibit 7: Deadend Vertical Single Circuit Wood Pole Structure. One (1) structure is needed. Exhibit 8: Custom Double Circuit Tangent Wood Pole Crossing Structure. One (1) structure is needed. Exhibit 9: Custom Double Circuit Tangent Wood Pole Crossing Structure. One (1) structure is needed. Exhibit 10: Single Circuit Suspension Wood Pole Structure. One (1) structure is needed. Exhibit 11: Single Circuit Braced Post Steel Pole Structure. Two (2) structures are needed. Exhibit 12: Single Circuit Wood Pole Structure Horizontal Post Delta Single Pole. One (1) structure is needed.

The substation expansion construction will have the following characteristics:

Bus work:	100 feet of new aluminum bus added
	200 feet of existing aluminum bus is removed
Breakers:	4 138 kV, 3000 A SF6 Breakers
Switches:	9 138 kV, 2000A Disconnect Switches
Wave Trap:	2 138 kV, 2000A
CCVTs:	6 138 kV CCVTs
Fence:	78 linear feet of fence is added

4906-6-05 (B)(9)(b): Electric and Magnetic Fields

The closest occupied residence or institution is approximately 115 feet from the proposed transmission line centerline therefore no Electric and Magnetic Field ("EMF") calculations are required by this code provision.

4906-6-05 (B)(9)(c): Estimated Cost

The total estimated capital cost for the proposed project is approximately $7,647,700. This includes approximately $2,801,100 for transmission line portion and approximately $4,846,600 for the substation portion.

4906-6-05 (B)(10): SOCIAL AND ECOLOGICAL IMPACTS

4906-6-05 (B)(10)(a): Land Uses

The Project is located in Pleasant Township, Green Camp Township, and Marion Township, Marion County, Ohio. The main land use around the Project is agricultural.

4906-6-05 (B)(10)(b): Agricultural Land

Agricultural land does exist within the Project's disturbance area. Most of the agricultural land is in row crops located within the right-of-way. Three (3) of the four (4) parcels are rented fields and the proposed Project will not conflict with their continued use. A list of all agricultural land and acreage including agricultural district land is given in Table 2.

Table 2: Agricultural Lands within the Project's Disturbance Area

Parcel Number	Property Owner	Acreage	Agricultural District	Agricultural District Expiration
250110000100	Pheasants Forever Inc.	9	No	N/A
250830600300	Ohio Edison	24.8	No	N/A
250830600200	Ohio Edison	18.6	No	N/A
170080004500	Clabaugh Lynn M Etal	55.6	Yes	2024

4906-6-05 (B)(10)(c): Archaeological or Cultural Resources

As part of the investigation, a search of Ohio Historic Preservation Office ("OHPO") online database was conducted to identify the existence of any significant archeological or cultural resource sites within 0.5 miles of the Project Area. The results of the search are shown in Exhibit 13. The specific location of any archeological resource is excluded from the map and are instead listed in Table 3.

The OHPO database includes all Ohio listings on the National Register of Historic Places ("NRHP"), including districts, sites, building, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The results of the search indicate that no listed NRHP sites and no NRHP eligible sites were identified within 0.5 miles of the Project potential disturbance area.

The OHPO database also includes listing of the Ohio Archaeological Inventory ("OAI"), the Ohio Historic Inventory ("OHI"), previous cultural resource surveys, and the Ohio Genealogical Society ("OGS") cemetery inventory. Three (3) OAI listed archeological resources have been previously inventoried within 0.5 miles of the Project area and are shown in Table 3. No OHI listed structural resources are located within 0.5 miles of the Project area. Four (4) previous cultural resource surveys were conducted within 0.5

miles of the Project area and are listed in Table 4. One (1) OSG cemetery is located within 0.5 miles of the Project area and is identified in Table 5.

Table 3. List of OAI Listed Archeological Resources

OAI Number	Affiliation	Description	County	Quad Name
MN0061	Prehistoric	Unknown Prehistoric	Marion	Marion West
MN0062	Prehistoric	Unknown Prehistoric	Marion	Marion West
MN0063	Prehistoric	Unknown Prehistoric	Marion	Marion West

Table 4. List of Previous Cultural & Historic Resource Survey

Year	Name	County	Municipality
1995	Phase I Archaeological Survey for Ohio Edison Company's Proposed Kirby-Roberts 138 kV Transmission Line in Marion and Union Counties, Ohio	Marion	Pleasant Township
2012	Phase I Cultural Resource Management Survey of a Proposed 9 ha (22.4a.) Wetland Restoration Project in Green Camp and Pleasant Townships, Marion County, Ohio	Marion	Green Camp Township & Pleasant Township
2018	Additional Phase I Archaeological Investigations for the Approximately 39.9 km (24.8 mi) Harpster-South Morral 69 kV Rebuild Project in Pitt Township, Wyandot County and Waldo/Pleasant/Big Island/Salt Rock Townships, Marion County, Ohio	Marion	Pleasant Township
2018	Additional Phase I Archaeological Investigations for the Approximately 39.9 km (24.8 mi) Harpster-South Morral 69 kV Rebuild Project in Pitt Township, Wyandot County and Waldo/Pleasant/Big Island/Salt Rock Townships, Marion County, Ohio	Marion	Pleasant Township

Table 5. List of OGS cemeteries

OGS ID	Name	County	Location
7384	Cusick	Marion	Not Confident

The closest OAI is located approximately 0.20 miles away. The closest Phase 1 survey is located along the new transmission line centerline near Crissinger Substation and near the existing Kirby-Roberts 138 kV Transmission Line. Based upon the results of the OHPO online database there are no cultural resources within the Project's area and no impacts are expected.

Although, the OSG cemetery location is rated "not confident", notes in the OHPO database indicate that is located within 400 feet of the intersection of Crissinger Road and Bellefontaine Avenue. This would place the cemetery approximately 0.45 miles away from the Project area. Consequently, no impacts are expected.

4906-6-05 (B)(10)(d): Local, State, and Federal Requirements

Table 6 shows the list of government agency requirements and the filing status at the time of filing.

Table 6. List of Government Agency Requirements to be Secured Prior to Construction

Agency	Permit Requirement	Status
Ohio EPA	General NPDES Construction Strom Water Permit	Will be Filed

4906-6-05 (B)(10)(e): Endangered, Threatened, and Rare Species Investigation

ATSI contracted AECOM to submit a request to the Ohio Department of Natural Resources ("ODNR") Office of Real Estate to conduct an Environmental Review As part of the Environmental Review, the ODNR Office of Real Estate conducted a search of the

ODNR Division of Wildlife's Natural Heritage Database to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project area. The ODNR's Office of Real Estate's response on March 25, 2019 indicated that four (4) federally and state endangered species, one (1) federally threatened and state endangered species, one (1) federal candidate and state endangered species, two (2) state endangered species, and one (1) state threatened species are within the range of the identified Project area. The ODNR also indicated there are records of the Bald Eagle (*Haliaeetus leucocephalus*) within the one mile of the Project area. A copy of ODNR's Office of Real Estate's response is included as Exhibit 14.

ATSI contracted AECOM to submit a request to the US Fish and Wildlife Service ("USFWS") for an Ecological Review, to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project area. A copy of USFWS's Ecological Review response is included as Exhibit 15. The USFW's response on March 1, 2019 indicated that they have records of one (1) federally endangered and (1) federally threatened species. A list of all endangered, threatened, and rare species, as identified by ODNR and USFWS, is provided in Table 7.

Table 7: List of Endangered, Threatened, and Rare Species

Common Name	Scientific Name	Federal Listed Status	State Listed Status	Affected Habitat
Indiana Bat	*Myotis sodalis*	Endangered	Endangered	Trees & Forest
Northern Long-Ear Bat	*Myotis septentrionalis*	Threatened	Threatened	Trees & Forest
Clubshell	*Pleurobema clava*	Endangered	Endangered	In-Water, Streams
Rayed Bean	*Villosa fabalis*	Endangered	Endangered	In-Water, Streams
Snuffbox	*Epioblasma triquetra*	Endangered	Endangered	In-Water, Streams

Table 7: List of Endangered, Threatened, and Rare Species				
Common Name	**Scientific Name**	**Federal Listed Status**	**State Listed Status**	**Affected Habitat**
Rabbitsfoot	*Quadrula cylindrica cylindrica*	Candidate	Endangered	In-Water, Streams
Pondhorn	*Uniomerus tetralasmus*	N/A	Threatened	In-Water, Streams
Eastern Massasauga	*Sistrurus catenatus*	Threatened	Endangered	Wetlands
American Bittern	*Botaurus lentiginosus*	N/A	Endangered	Wetlands
King Rail	*Rallus elegans*	N/A	Endangered	Grass & Marsh
Bald Eagle	*Haliaeetus leucocephalus*	Protected	Protected	Trees

The response from ODNR and USFWS indicated Project is within the range of the federally and state endangered Indiana Bat (Myotis sodalis) and the federally threatened Northern Long-Eared Bat (Myotis septentrionalis). Tree clearing is needed along a portion of the right-of-way. Tree clearing will be completed between October 1st and March 31st to avoid affecting any potential bat habitat. If this schedule cannot be achieved and the clearing of trees outside of this window is deemed necessary, ATSI will conduct a bat survey this summer and subsequent consultation with ODNR and USFWS will be completed prior to clearing.

The response from ODNR indicated that the mussel species listed in the Project area include clubshell (*Pleurobema clava*), rayed bean (*Villosa fabalis*), snuffbox (*Epioblasma triquertra*), rabbitsfoot (*Quadrula cylindrical cylindrical*), and pondhorn (*Uniomerus tetralasmus*) and the ODNR recommend that no in-water work should occur in perennial streams from April 15 to June 30. Based on the recent wetland delineation and stream assessment, only one perennial stream (Stream CK-03) was identified within the Project area. ATSI is not planning on crossing this stream and therefore no adverse affects to these species are anticipated.

The response from ODNR indicated that the Project is within the range of the American bittern (*Botaurus lentiginosus*). This species requires large undisturbed wetlands with small pools and dense vegetation including bogs, large wet meadows, and dense shrubby swamps. ODNR recommends avoiding impacts to this species habitat during the period of May 1 to July 31. The results of the wetland delineation and stream assessment identified a total of six wetland habitats including four palustrine emergent wetland (PEM), one palustrine scrub-shrub wetland (PSS), and one PSS/palustrine forested wetland (PFO) complex. The three of the four PEM wetlands are recently or previously disturbed by agricultural activities and would likely not be able to support a population of these species. The remaining PEM wetland is a small wetland area located along the edge of the survey area that will not be impacted by the Project. Even though, the PSS and PSS/PFO wetland complexes have dense woody vegetation, the hydrologic component of these wetlands are not inundated and would unlikely be able to provide the necessary habitat components for this species.

The response from ODNR indicated that the Project is within the range of the King Rail (*Rallus elegans*). This species nest in deep bowls constructed of grass within marshes dominated by cattails and other tall emergent vegetation, preferably in wetlands larger than 50 acres. However, this species has also nested in buttonbush swamps, wet meadows, marshy pools in swamp forest, and brushy tangles in swamp meadows. The king rail prefers permanently flooded wetlands where water depths are less than six inches. The ODNR recommends avoiding impacts to this species habitat between May 1 to August 1. The results of the wetland delineation and stream assessment report did not identify any inundated wetland areas or wetlands greater than 50 acres in size that would be able to provide the necessary habitat components for this species.

The response from ODNR indicated that the Project is within the range of the Bald Eagle (*Haliaeetus leucocephalus*). This species nest in trees close to large bodies of water. The closest recorded sighting of an eagle to the Project was in 2017, approximately 0.6 miles to the west in the Big Island Wildlife Area. No large bodies of water are located closer to

the Project area, and no eagles or potential nests were observed during the March 18, 2019 wetland and stream delineation survey. Therefore, no adverse effect to this species is anticipated.

4906-6-05 (B)(10)(f): Areas of Ecological Concern

ATSI contracted AECOM to submit to the Ohio Department of Natural Resources ("ODNR") Office of Real Estate to conduct an Environmental Review. The ODNR Office of Real Estate researched the presence of any unique ecological sites, geological features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forest, national wildlife refuges, or other protected natural areas within one (1) mile of the project area. The ODNR's Office of Real Estate's response on March 25, 2019 indicated that they have two (2) records of these types of areas within one (1) mile of the identified Project area. These areas are the Big Island Wildlife Area and the Trella Romine Prairie Area.

The Big Island Wildlife Area at its closest point is located approximately 1000 feet away from the Project. The Trella Romine Prairie at its closest point is located approximately 0.7 miles away from the Project. Due to the distance away from the Project area there are no anticipated impacts to either of these Wildlife areas

ATSI contracted AECOM to conduct a wetland and stream assessment of the Project area. The AECOM investigation focused on an approximately 8-acre study area around the proposed Project centerline, access roads, and additional workspace areas. During the study, AECOM identified seven (7) wetland areas totaling 1.15 acres, two (2) intermittent streams totaling 968 linear feet, and one (1) perennial stream totaling 269 linear feet. No Ponds were located within the surveyed area. A copy of the wetland and stream assessment report is provided in Exhibit 16.

No impacts to wetlands or streams will be necessary to complete the Project. All proposed access roads for Project are planned to utilize construction matting or other best

management practices to minimize temporary earth disturbance. A map of the proposed access roads is provided in Exhibit 17.

The Project work limits do encroach on a regulated flood plain based on a review of online FEMA Flood Insurance Rate Mapping. The Project will not fill any area within the floodplain but will install 3 wood pole structures. Exhibit 17 depicts the location of the regulated flood plains in relation to the Project Area.

4906-6-05(B)(10)(g): Other Information

Construction and operation of the proposed Project will be in accordance with the requirements specified in the latest revision of the National Electric Safety Code as adopted by the PUCO and will meet all applicable safety standards established by the Occupational Safety and Health Administration.

No other or unusual conditions are expected that will result in significant environmental, social, health or safety impacts.

4906-6-07: Documentation of Letter of Notification Transmittal and Availability for Public Review

This Letter of Notification is being provided concurrently with its docketing with the Board to the following officials in Pleasant Township, Green Camp Township, and Marion Township, Marion County, Ohio.

Marion County

Commissioner Kerr Murray
Marion County Commissioners
222 West Center Street
Marion, OH 43302

Commissioner Andy Appelfeller
Marion County Commissioners
222 West Center Street
Marion, OH 43302

Commissioner Ken Stiverson
Marion County Commissioners
222 West Center Street
Marion, OH 43302

Mr. Bradley K. Irons, P.E., P.S.
Marion County Engineer
222 West Center Street
Marion, OH 43302

Ms. Evelyn Warr-Cummings,
Director
Marion County Planning
Commission
222 West Center Street, 2nd Floor
Marion, OH 43302

Pleasant Township

Mr. David Schrote
Pleasant Township Trustee
1252 E Marion-Cardington Rd.
Marion, OH 43302

Mr. Steve Lust
Pleasant Township Trustee
2650 W Newsman Cardington Rd.
Prospect, OH 43342

Mr. Wayne Creasap
Pleasant Township Trustee
2876 Smeltzer Rd.
Marion, OH 43302

Mr. Lavon Verity
Pleasant Township Fiscal Officer
1035 Owens Road West
Marion, OH 43302

Green Camp Township

Mr. Steve Ruth
Green Camp Township Trustee
4245 Berry Rd
Marion, OH 43302

Ms. Virginia Ralph
Green Camp Township Trustee
P.O. Box 114
Green Camp, OH 43322

Mr. Thomas McBeth
Green Camp Township Trustee
P.O. Box 219
Green Camp, OH 43322

Ms. Mary McBeth
Green Camp Township Fiscal
Officer
P. O. Box 219
Green Camp, OH 43322

Marion Township

Mr. Larry Ballinger
Marion Township Trustee
1228 E. Fairground St
Marion, OH 43302

Ms. Karen McCleary
Marion Township Trustee
1228 E. Fairground St
Marion, OH 43302

Mr. Lynn Thomas
Marion Township Trustee
1228 E. Fairground St
Marion, OH 43302

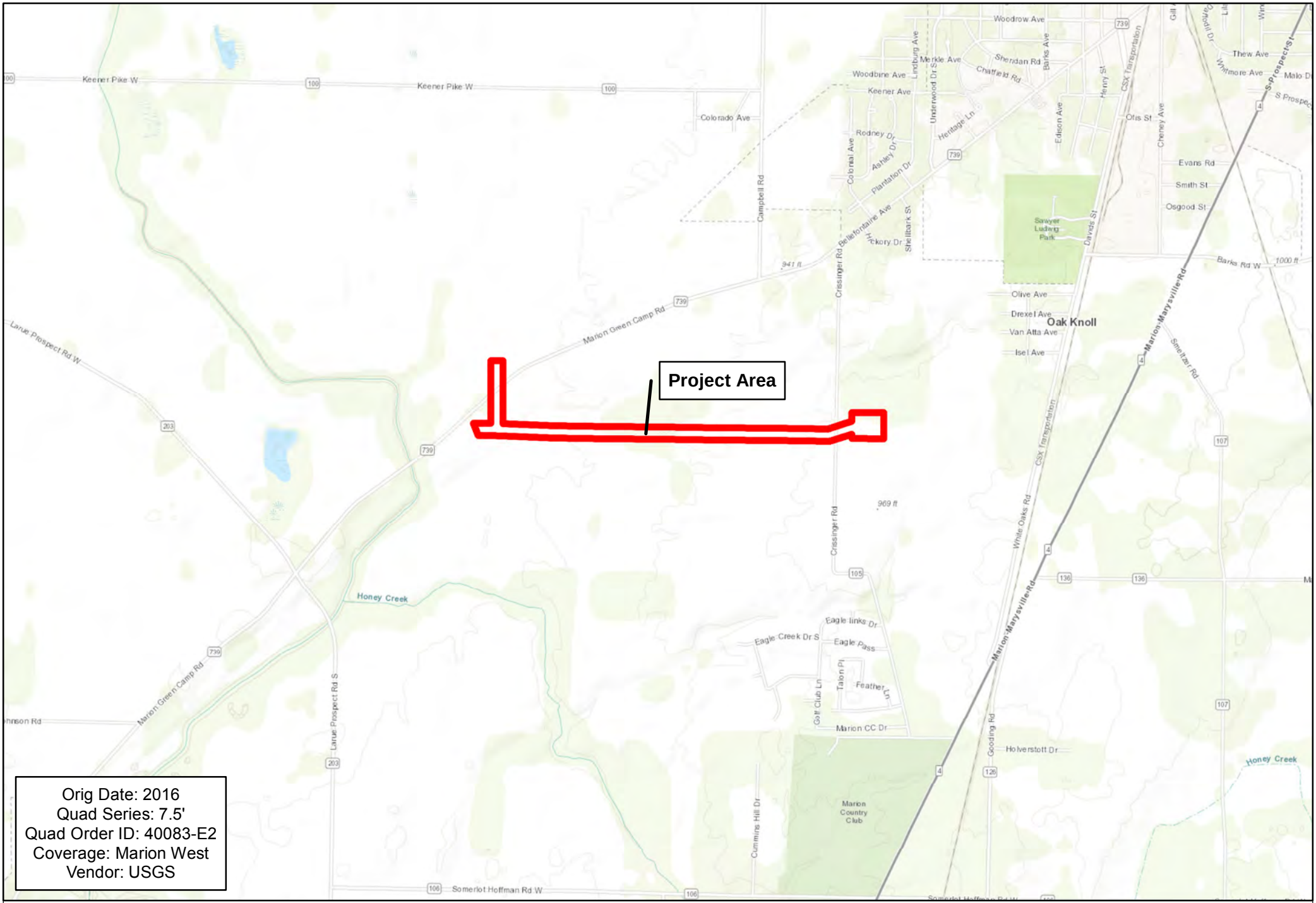
Ms. Sheila Perin
Marion Township Fiscal Officer
1228 E. Fairground St
Marion, OH 43302

Library

Mr. Gary Branson
Marion Public Library
445 E Church St
Marion, OH 43302

Copies of the transmittal letters to these officials have been included with this application as proof of compliance under OAC Rule 4906-6-07 (B) to provide the Board with proof of notice to local officials as required by OAC Rule 4906-6-07 (A)(1) and to libraries per OAC Rule 4906-6-07 (A)(2).

Information is posted at www.firstenergycorp.com/about/transmission_project/ohio.html on how to request an electronic or paper copy of this Letter of Notification application. The link to this website is being provided to meet the requirements of OAC Rule 4906-6-07 (B) and to provide the Board with proof of compliance with the notice requirements in OAC Rule 4906-6-07 (A)(3).



Legend

Project Area

N

Crissinger-Tangy 138kV and Kirby-Roberts 138kV Project Area Exhibit 1

0 ¼ ½ ¾ 1 Miles

Map Created On: 4/5/2019

Legend

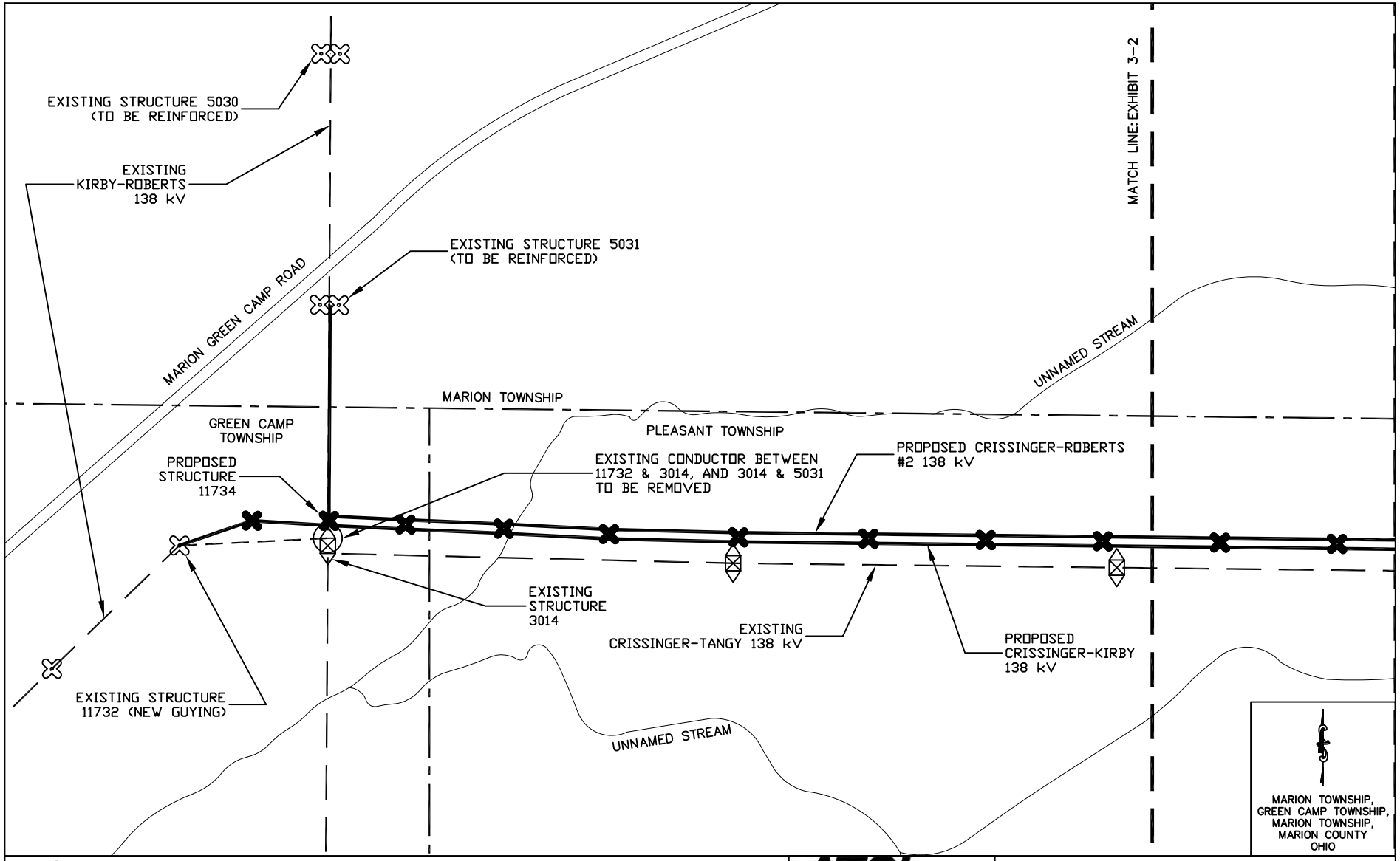
Project Area

N

Crissinger-Tangy 138kV and Kirby-Roberts 138kV Project Area Exhibit 2

0 ¼ ½ ¾ 1 Miles

Map Created On: 4/5/2019



LEGEND

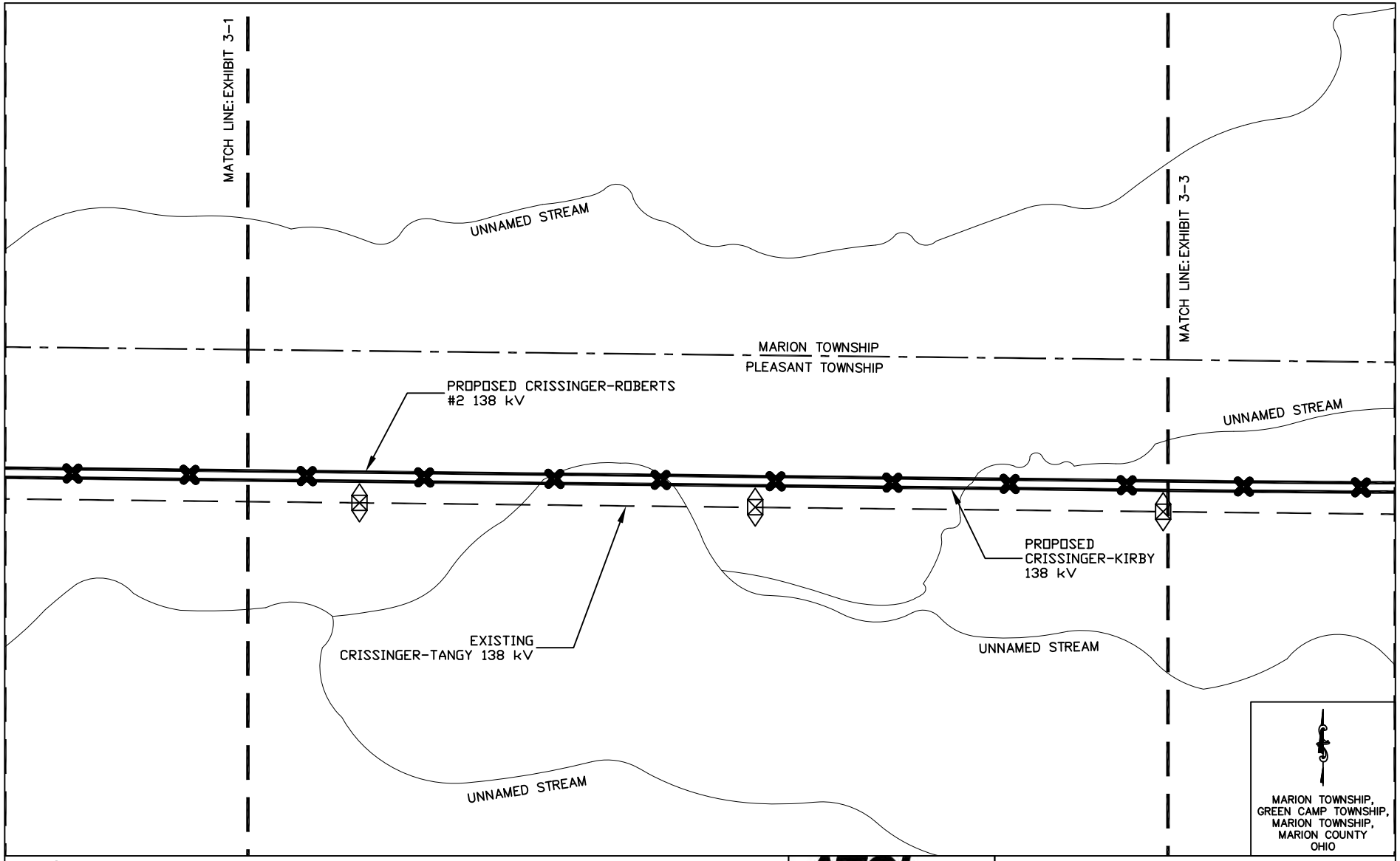
- EXISTING CONDUCTOR
- EXISTING CONDUCTOR TO BE REMOVED
- NEW CONDUCTOR
- MUNICIPAL BOUNDARY
- SUBSTATION FENCE LINE
- EXISTING STEEL LATTICE STRUCTURE
- EXISTING 2-POLE WOOD STRUCTURE
- EXISTING SINGLE POLE WOOD STRUCTURE
- NEW SINGLE POLE WOOD STRUCTURE
- NEW SINGLE POLE STEEL STRUCTURE

ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

KIRBY–ROBERTS 138 kV
TRANSMISSION LINE LOOP TO
CRISSINGER SUBSTATION

GENERAL LAYOUT

EXHIBIT 3–1



LEGEND

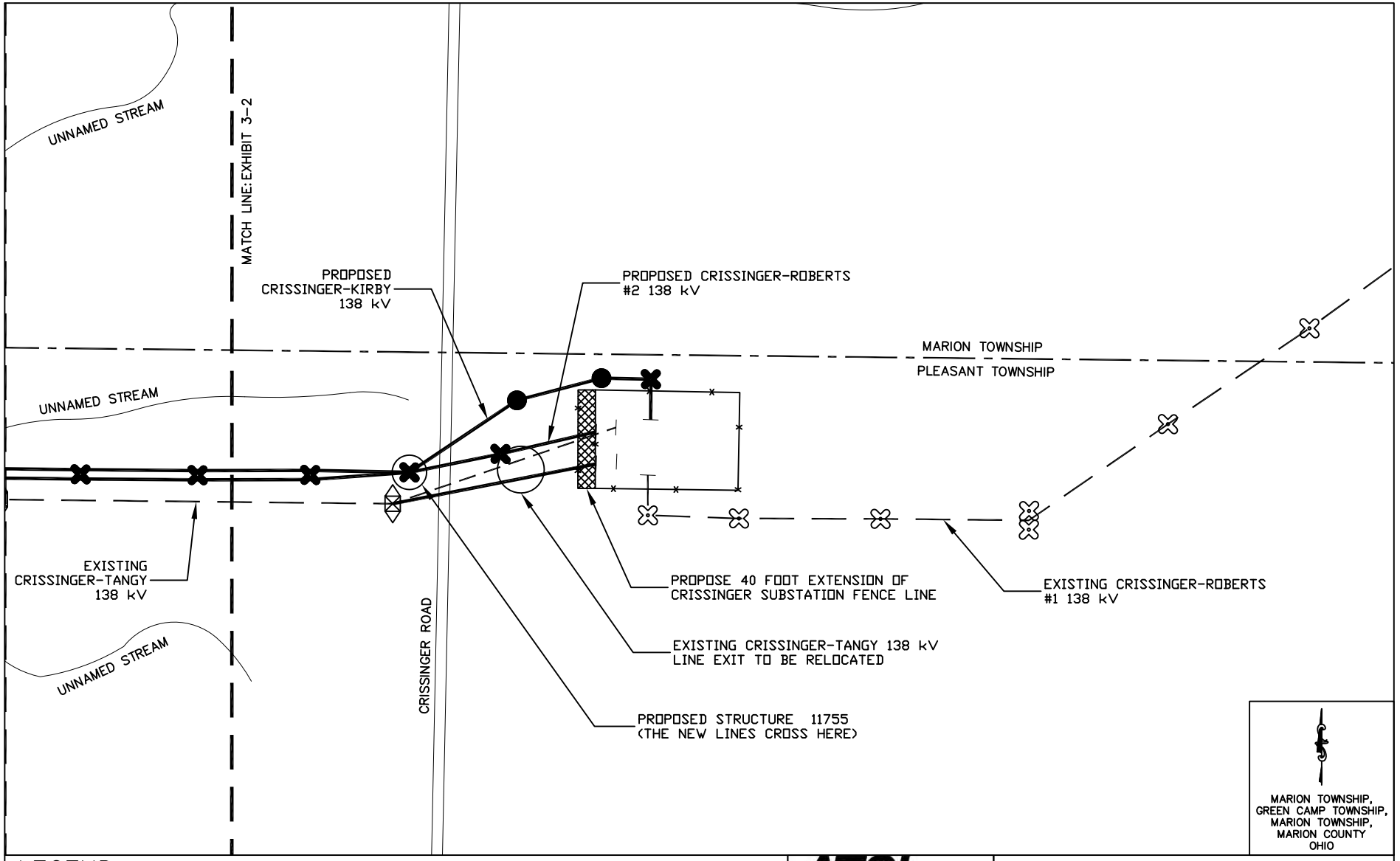
- EXISTING CONDUCTOR
- EXISTING CONDUCTOR TO BE REMOVED
- NEW CONDUCTOR
- MUNICIPAL BOUNDARY
- SUBSTATION FENCE LINE
- EXISTING STEEL LATTICE STRUCTURE
- EXISTING 2-POLE WOOD STRUCTURE
- EXISTING SINGLE POLE WOOD STRUCTURE
- NEW SINGLE POLE WOOD STRUCTURE
- NEW SINGLE POLE STEEL STRUCTURE

ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

KIRBY–ROBERTS 138 kV
TRANSMISSION LINE LOOP TO
CRISSINGER SUBSTATION

GENERAL LAYOUT

EXHIBIT 3–2



MARION TOWNSHIP,
GREEN CAMP TOWNSHIP,
MARION TOWNSHIP,
MARION COUNTY
OHIO

LEGEND

- EXISTING CONDUCTOR
- EXISTING CONDUCTOR TO BE REMOVED
- NEW CONDUCTOR
- MUNICIPAL BOUNDARY
- SUBSTATION FENCE LINE
- EXISTING STEEL LATTICE STRUCTURE
- EXISTING 2-POLE WOOD STRUCTURE
- EXISTING SINGLE POLE WOOD STRUCTURE
- NEW SINGLE POLE WOOD STRUCTURE
- NEW SINGLE POLE STEEL STRUCTURE

ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

KIRBY–ROBERTS 138 kV
TRANSMISSION LINE LOOP TO
CRISSINGER SUBSTATION

GENERAL LAYOUT

EXHIBIT 3–3

EXHIBIT 4

ATSI Transmission Zone: Supplemental Crissinger 138 kV Ring Bus Expansion

Previously Presented: 8/31/2018 SRRTEP

Problem Statement (Scope and Need/Drivers):

Operational Flexibility and Efficiency

- Improve operational flexibility during maintenance and restoration efforts
- Reduce amount of potential local load loss (Approximately 99 MWs) under contingency conditions
- Mitigate non-planning criteria voltage concerns on the < 100 kV system under contingency (P6) conditions.
  - Loss of Crissinger-Roberts 138 kV and Crissinger-Tangy 138 kV Lines
  - Results in potential local voltage collapse on the 34.5 kV sub-transmission system.

Selected Solution:

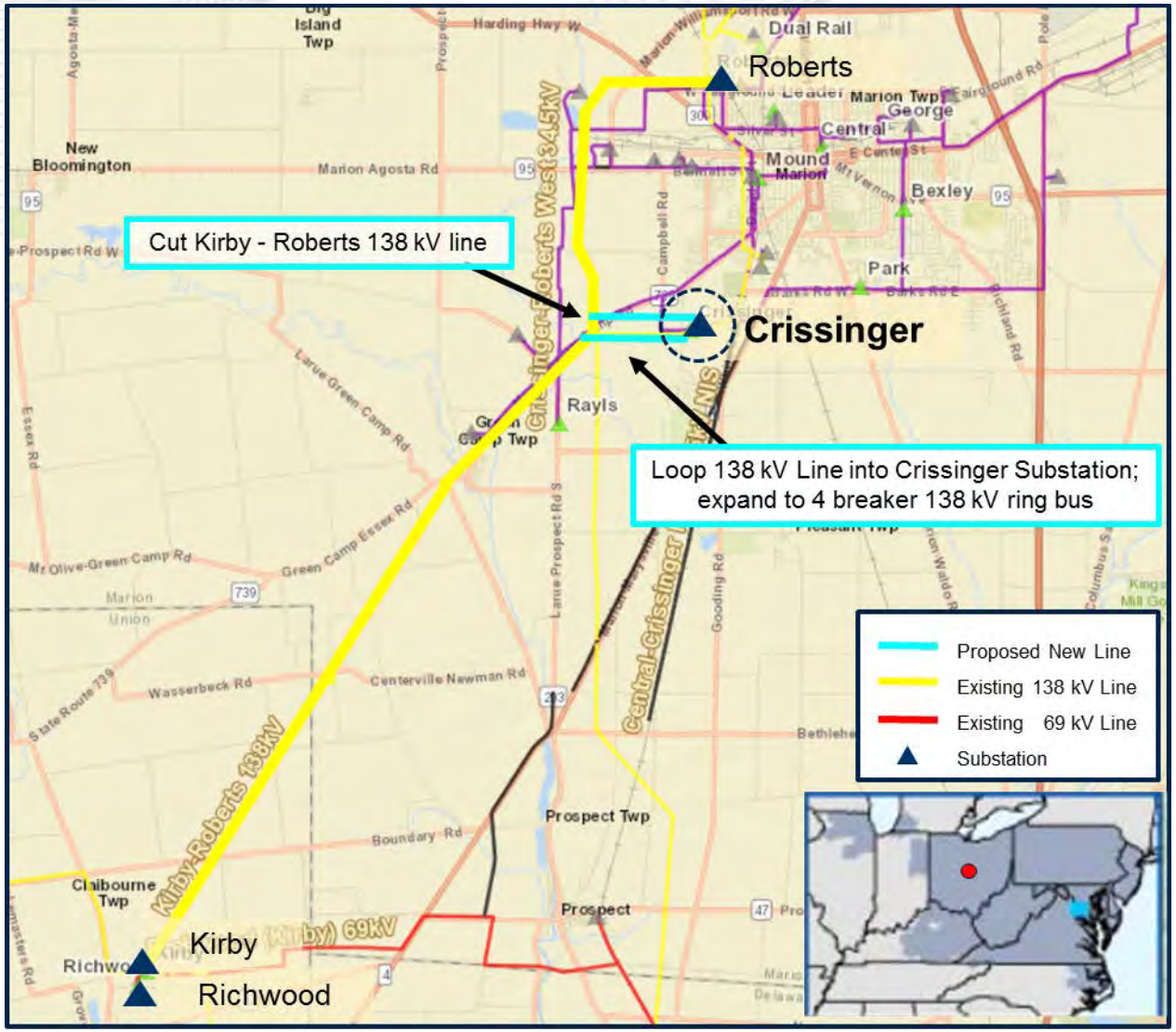
Crissinger 138 kV Ring Bus Expansion (S1696)

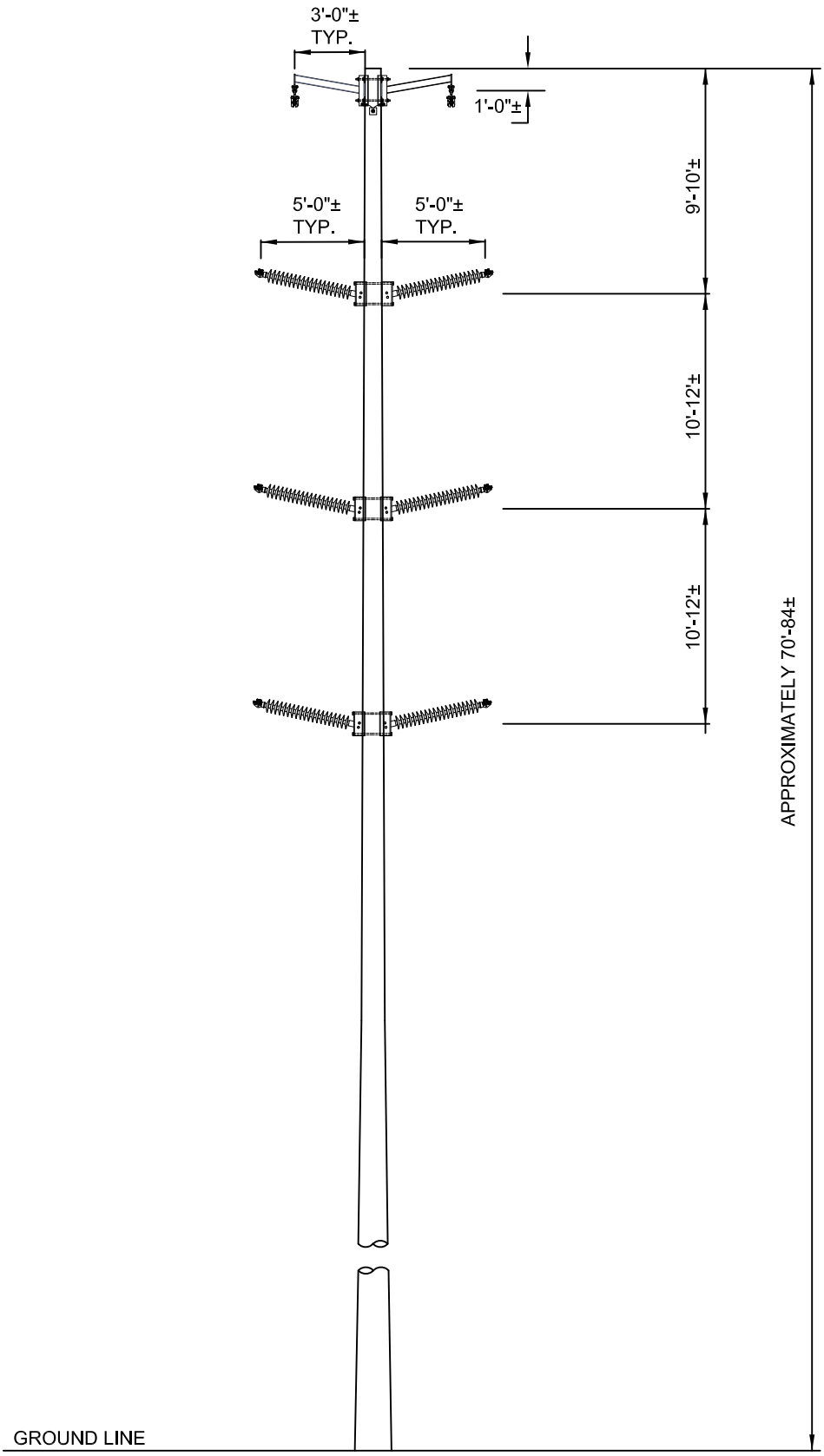
- Expand existing Crissinger substation from a four (4) breaker to a six (6) breaker 138 kV ring bus.
- Cut and extend the Kirby-Roberts 138 kV line to Crissinger substation. (Approximately 1.0 mile)
- Reconfigure Crissinger substation to include terminals for:
  Crissinger – Kirby 138 kV Line and Crissinger – Roberts #1 138 kV Line
  Crissinger – Roberts #2 138 kV Line and Crissinger – Tangy 138 kV Line

Estimated Project Cost: $5.8 M

Projected IS Date: 12/31/2019

Status: Engineering





**NOT TO SCALE

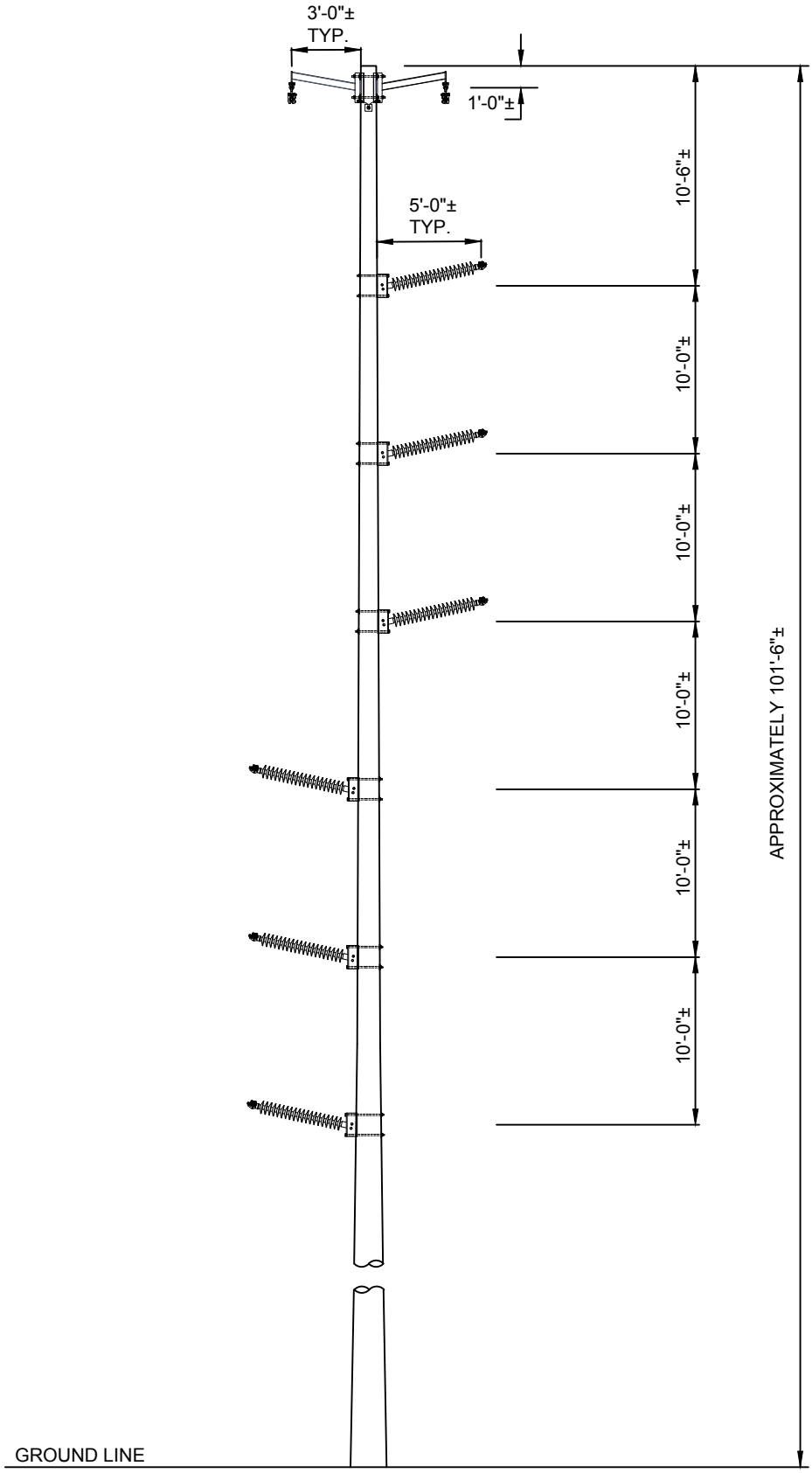
ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

VERTICAL DOUBLE CIRCUIT HORIZONTAL POST
WOOD POLE STRUCTURE

EXHIBIT 5

REV. B



**NOT TO SCALE

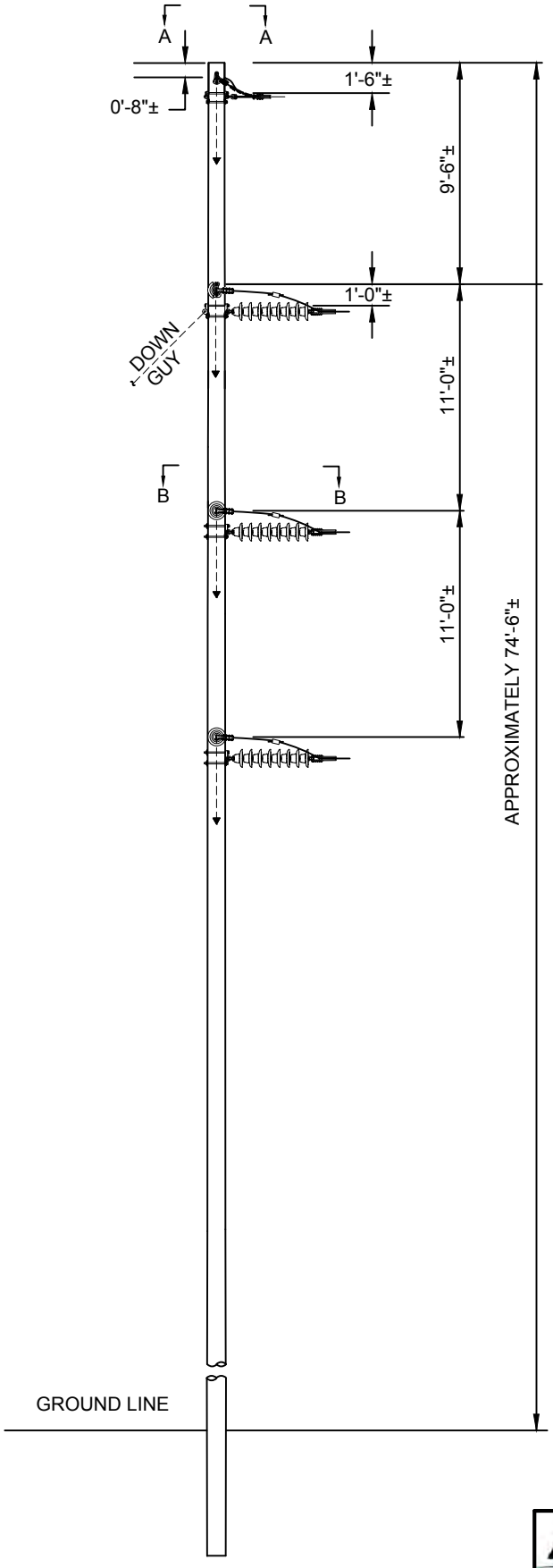
ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

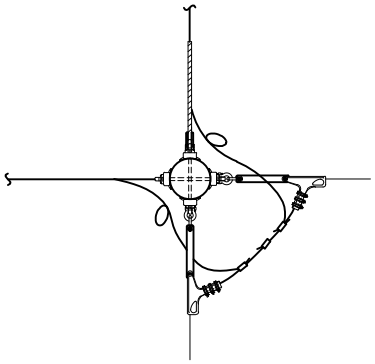
CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

VERTICAL STACKED DOUBLE CIRCUIT
HORIZONTAL POST
WOOD POLE STRUCTURE

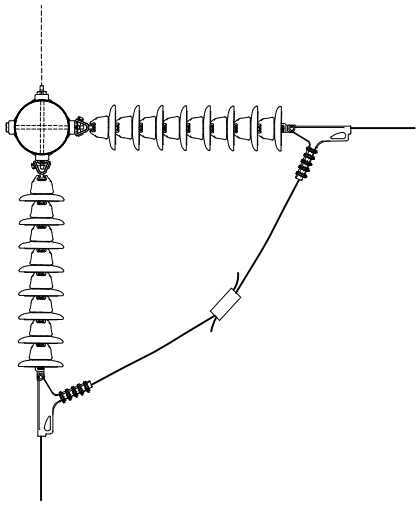
EXHIBIT 6

REV. A





SECTION A-A



SECTION B-B

**NOT TO SCALE

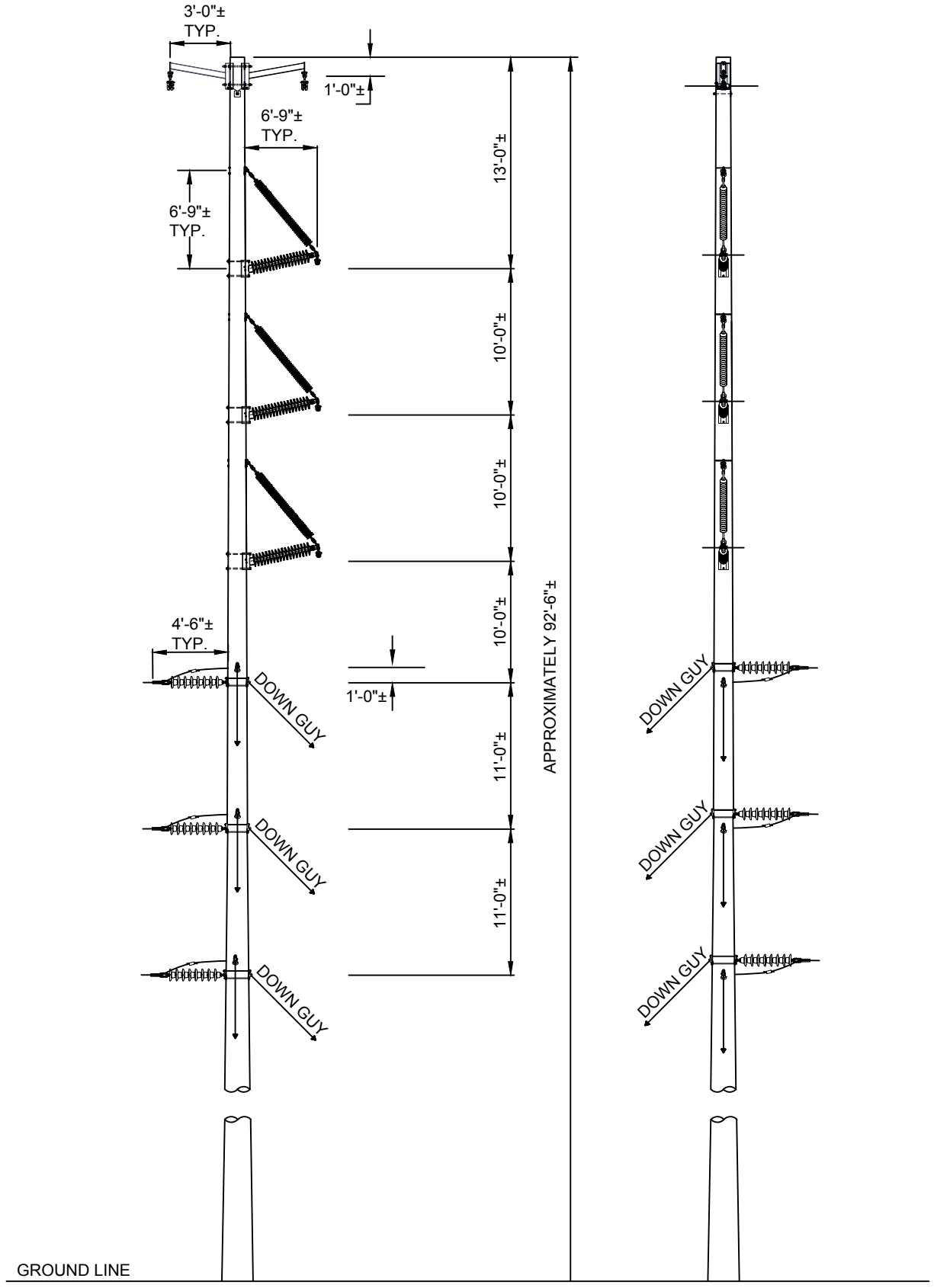
ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

DEADEND VERTICAL SINGLE CIRCUIT
WOOD POLE STRUCTURE

EXHIBIT 7

REV. A



**NOT TO SCALE

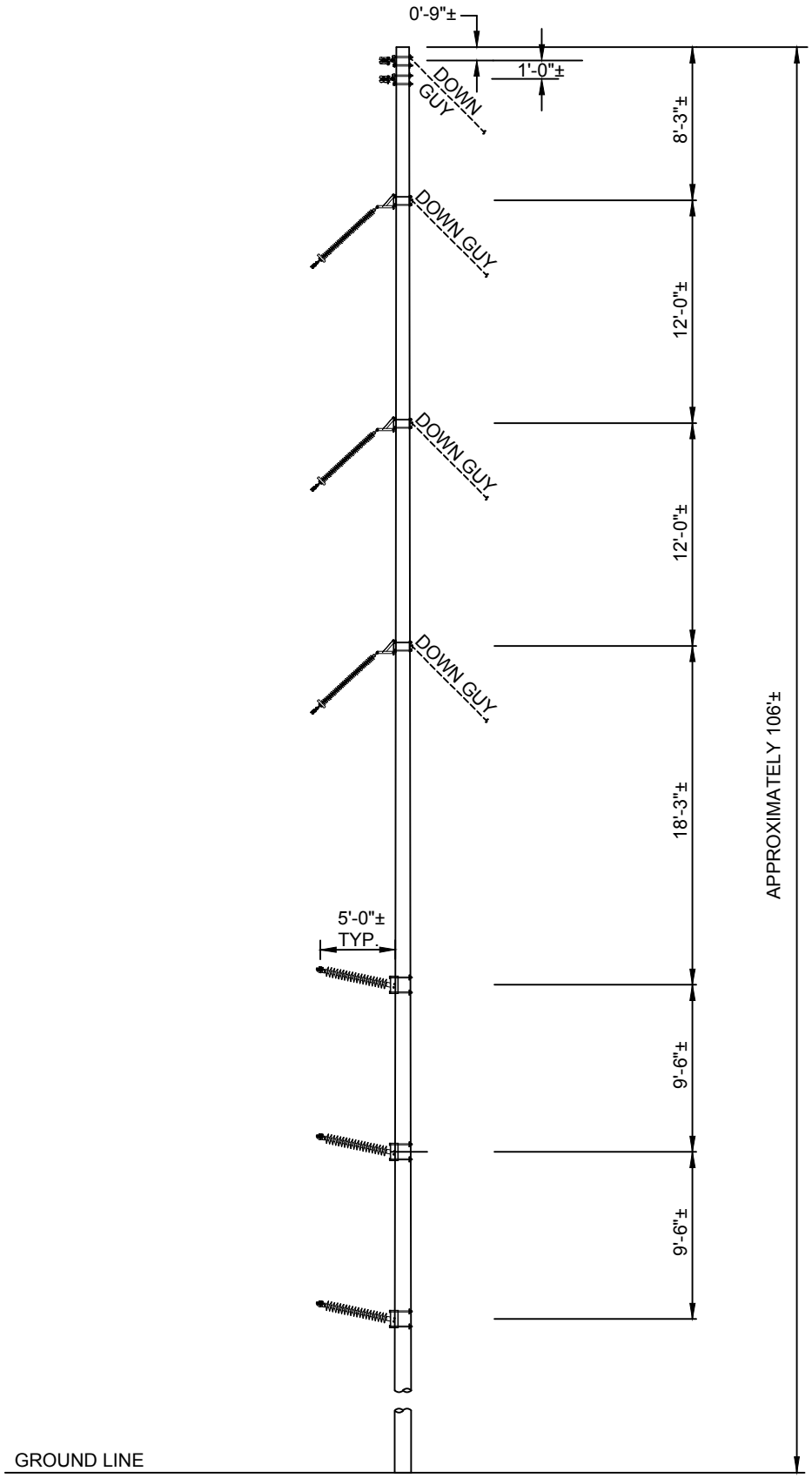
ATSI® American Transmission Systems, Inc a subsidiary of FirstEnergy Corp.

CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

CUSTOM DOUBLE CIRCUIT TANGENT
WOOD POLE CROSSING STRUCTURE

EXHIBIT 8

REV. A



ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

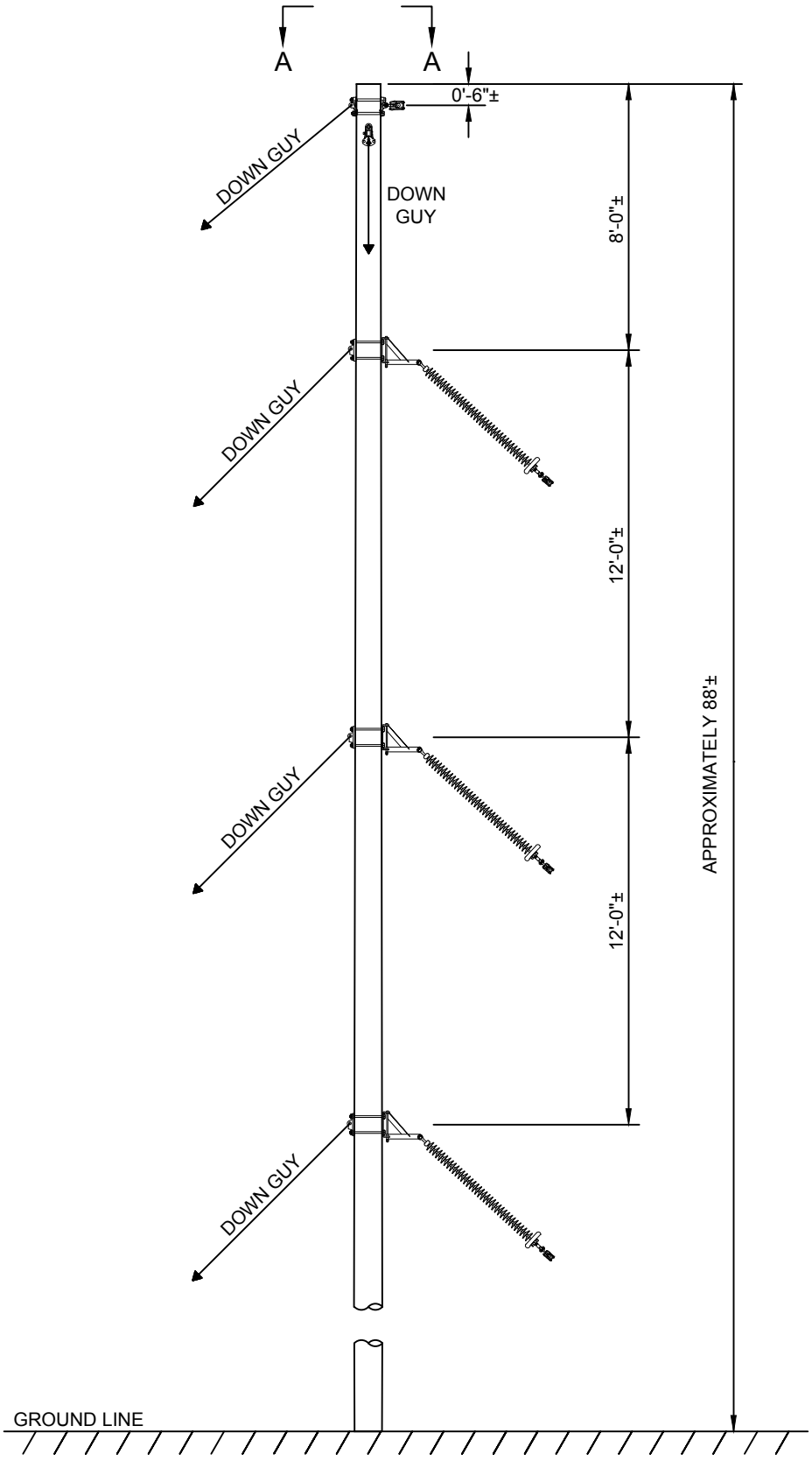
CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

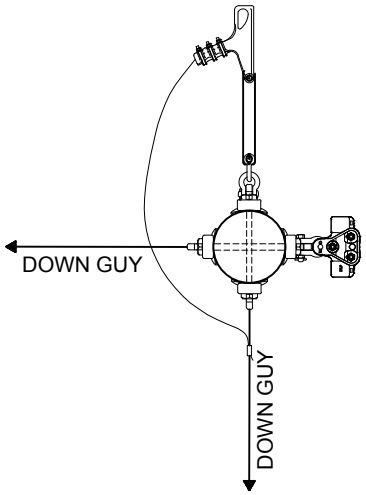
**NOT TO SCALE

CUSTOM DOUBLE CIRCUIT TANGENT WOOD POLE CROSSING STRUCTURE

EXHIBIT 9

REV. A





SECTION A-A

**NOT TO SCALE

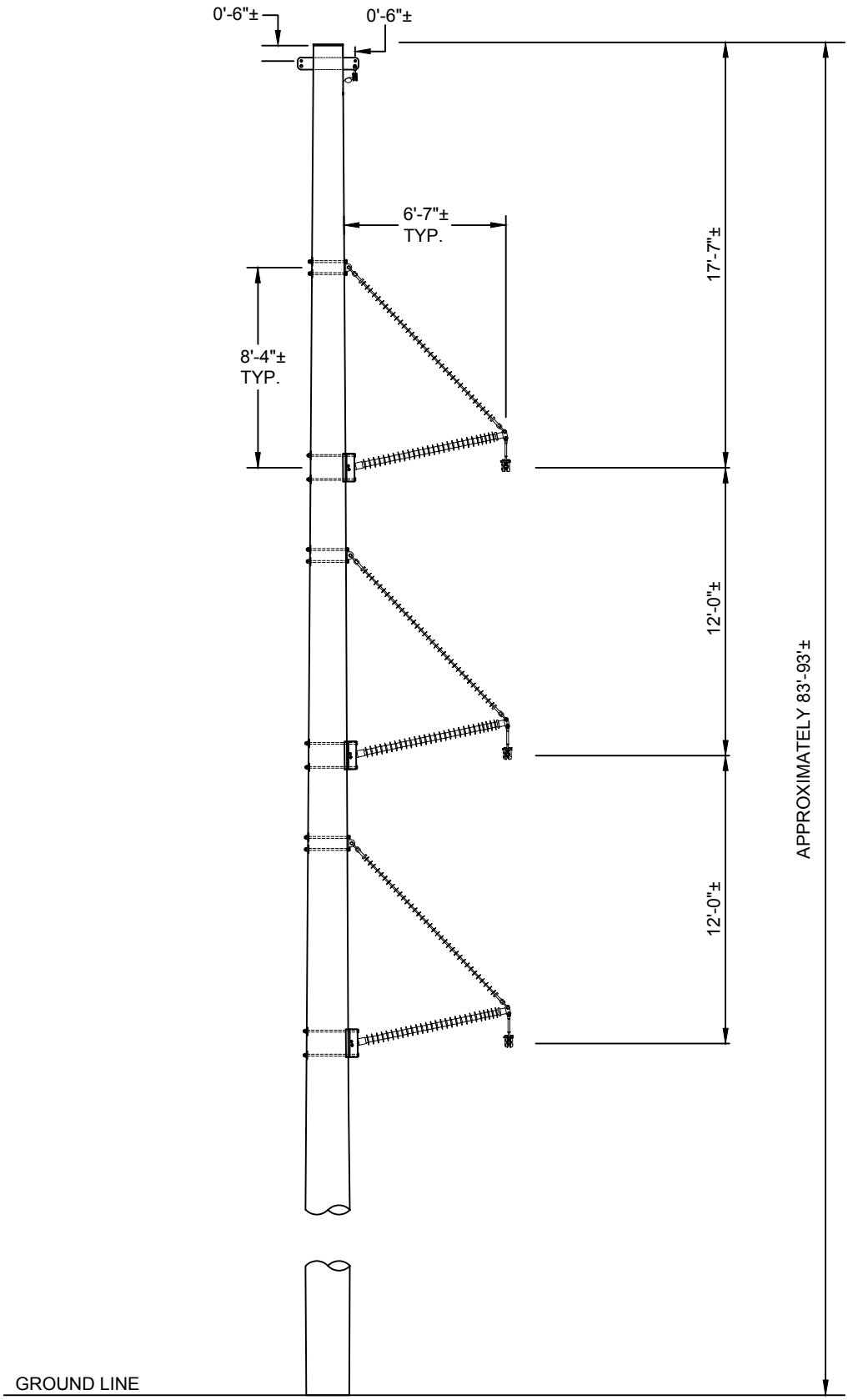
ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

SINGLE CIRCUIT SUSPENSION
WOOD POLE STRUCTURE

EXHIBIT 10

REV. A



**NOT TO SCALE

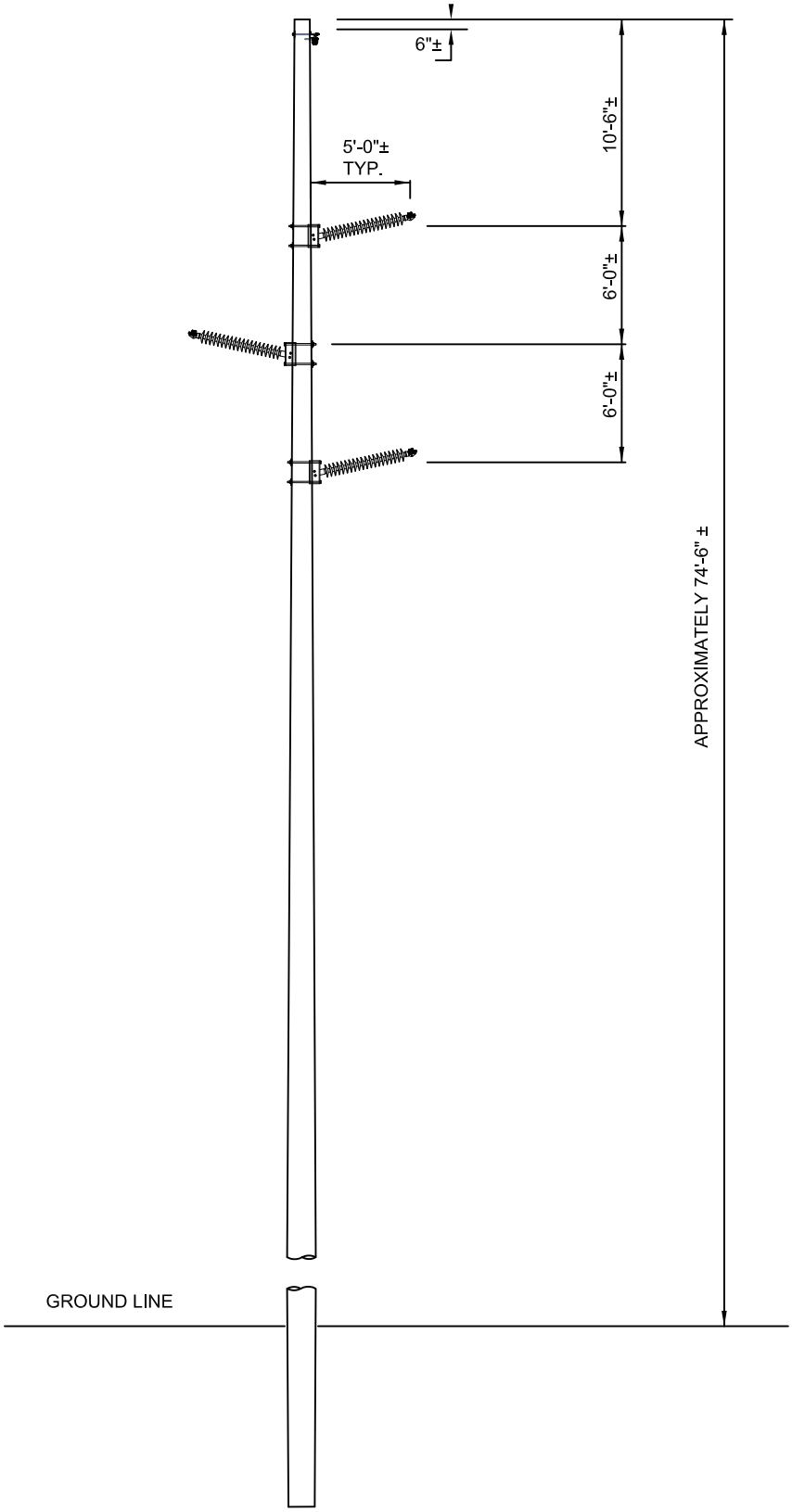
ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

SINGLE CIRCUIT BRACED POST
STEEL POLE STRUCTURE

EXHIBIT 11

REV. A



**NOT TO SCALE

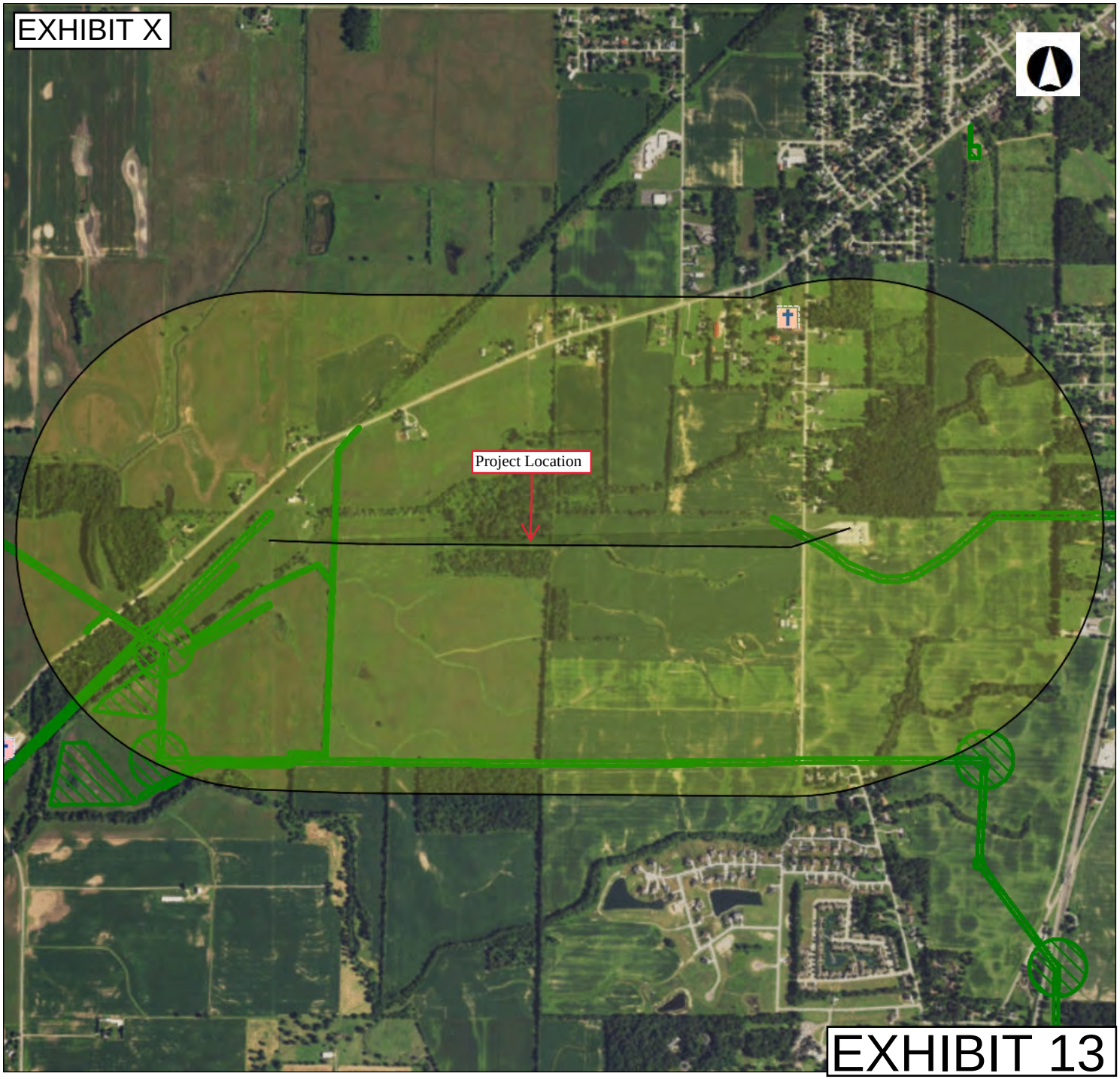
ATSI®
American Transmission Systems, Inc
a subsidiary of FirstEnergy Corp.

CRISSINGER–KIRBY 138kV
CRISSINGER–ROBERTS NO. 2 138kV

SINGLE CIRCUIT WOOD POLE STRUCTURE
HORIZONTAL POST DELTA SINGLE POLE

EXHIBIT 12

REV. A



OHIO HISTORY CONNECTION
State Historic Preservation Office

Legend

- NR Listings
  - Listed
  - National Historic Landmark
  - Delisted
- NR Determinations of Eligibi
- Historic Structures
- Historic Bridges
- Historic Tax Credit Projects
- OGS Cemeteries
  - Confident
  - Not Confident
- Dams
- UTM Zone Split
- NR Boundaries
- Phase1
- Phase2
- Phase3
- Historic Previously Surveyed

0 0.30 0.61 Miles

1: 24,000

Copyright/Disclaimer

Datum: [Datum]

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

EXHIBIT 14

Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR — MARY MERTZ, DIRECTOR

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

March 25, 2019

Brian Miller
AECOM
525 Vine Street
Cincinnati, Ohio 45202

Re: 19-165; Crissinger-Kirby 138 kV Loop and Crissinger Substation Expansion

Project: The proposed project consists of the installation of 1.1 miles of new 138 kV transmission loop line and the expansion of the Crissinger Substation.

Location: The proposed project is located in Green Camp Township, Marion 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 the following records at or within a one-mile radius of the project area:

Bald eagle (*Haliaeetus leucocephalus*), Federal species of concern
Big Island Wildlife Area – ODNR Division of Wildlife
Trella Romine Prairie – Appalachia Ohio Alliance

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. This information is provided to inform you of features present within your project area and vicinity.

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.

EXHIBIT 14

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 (*Quercus 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 dying 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 DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered and federal candidate mussel, and the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. Due to the location, 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 American bittern (*Botaurus lentiginosus*), a state endangered bird. Nesting bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. They occasionally occupy bogs, large wet meadows, and dense shrubby swamps. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

EXHIBIT 14

The project is within the range of the king rail (*Rallus elegans*), a state endangered bird. Nests for this species are deep bowls constructed out of grass and usually hidden very well in marsh vegetation. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to August 1. If no wetland habitat will be impacted, the 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 Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

John Kessler
Environmental Services Administrator

EXHIBIT 15

Ruggiero, Augustine (Henslee, Dianna L)

Subject: Crissinger-Kirby 138 kV Loop and Crissinger Substation Expansion, Marion County

From: susan_zimmermann@fws.gov [mailto:susan_zimmermann@fws.gov] **On Behalf Of** Ohio, FW3
Sent: Friday, March 01, 2019 8:52 AM
To: Miller, Brian
Cc: nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject: Crissinger-Kirby 138 kV Loop and Crissinger Substation Expansion, Marion County

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-0758

Dear Mr. Miller,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** *(Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

EXHIBIT 15

Due to your proposal to conduct summer clearing, **we recommend that a summer survey be conducted to determine presence or probable absence of Indiana bats at the project site.** The summer survey must be conducted by an approved surveyor (list attached) and be designed and conducted in coordination with the Endangered Species Coordinator for this office. In Ohio, summer mist net surveys must be conducted between June 1 and August 15. We recommend that any Indiana bats and northern long-eared bats captured, especially reproductively active females and juveniles, be monitored through radio-tracking to determine roost locations.

If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are also warranted. Portal surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office.

Survey results should be coordinated with this office prior to initiation of any work. Based on the results of the survey(s), we will evaluate potential impacts to the Indiana bat from the proposed project. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html).

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 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.

Due to the project type, size, and location, we do not anticipate adverse effects to any other 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 Service should be initiated to assess any potential impacts.

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 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 ohio@fws.gov.

Sincerely,

Patrice M. Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Kate Parsons, ODNR-DOW

EXHIBIT 15

Attachment: Surveyors List

Kirby-Roberts 138 kV Transmission Line Loop to Crissinger Substation Project
Case Number 19-0803-EL-BLN

Exhibit 16
Wetland Delineation and Stream Assessment Report

CRISSINGER-KIRBY 138 kV TRANSMISSION LINE LOOP AND CRISSINGER SUBSTATION EXPANSION PROJECT

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for:
American Transmission Systems, Inc.
a FirstEnergy Company
76 South Main Street
Akron, Ohio 44308

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

March 2019

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

LIST OF ACRONYMS and ABBREVIATIONS

ATSI	American Transmission Systems, Inc.
DBH	Diameter at Breast Height
°F	Degree Fahrenheit
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
IBI	Index of Biotic Integrity
KV	Kilovolts
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OAC	Ohio Administrative Code
OBL	Obligate wetland
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary high water mark
ORAM	Ohio Rapid Assessment Method
PAB	Palustrine Aquatic Bed
PEM	Palustrine Emergent
PML	Palustrine Moss-Lichen
PFO	Palustrine Forested
PHWH	Primary Headwater Habitat
PSS	Palustrine Scrub/Shrub
PUB	Palustrine Unconsolidated Bottom
PUS	Palustrine Unconsolidated Shore
PRB	Palustrine Rock Bottom
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
UPL	Upland
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WWH	Warmwater Habitat

1.0 INTRODUCTION

American Transmission Systems, Inc. (ATSI), a FirstEnergy Company (FirstEnergy), is proposing to construct a new1.1-mile, 138kV transmission line and to expand the limits of an existing substation as part of the Crissinger-Kirby 138 kV Transmission Line Loop and Crissinger Substation Expansion (Project) in Pleasant Township, Marion County, Ohio. The Project can be located on the United States Geological Survey (USGS) Marion West, Ohio 7.5-minute series topographical quadrangles (National Geographic Society, 2013) (Figure 1). The Project will begin at the Crissinger Substation and runs generally west, terminating at structure 11731 (approximately 220 feet southeast of Marion-Green Camp Road) in Green Camp Township, Marion County, Ohio). The approximate coordinates for the western terminus of the Project are 40.5563, -83.1582, and the eastern terminus is 40.5546, -83.183. The limit of the Project investigation is defined by the survey boundary (Figures 2A-2C and Figure 3A-3C).

Land uses crossed by the Project were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys. General land use types in the vicinity of the proposed Project include: fallow fields, agricultural land, forested land, and parallels a maintained transmission line right-of-way (ROW). Agricultural land is the dominant land use in the vicinity of the Project.

The Project area drains into unnamed tributaries (UNTs) of Little Scioto River, which eventually flow into the Little Scioto River. Little Scioto River and its unnamed tributaries are located within the Scioto River drainage basin. Little Scioto River has an Ohio Administrative Code (OAC) Chapter 3745-1 aquatic life habitat use designation of Modified Warmwater Habitat (MWH) (State of Ohio 2018). The UNTs to Little Scioto River do not have an existing state designations and a biological assessment has been completed for these resources.

As per the Section 401 Water Quality Certification (WQC) for Nationwide Permit and Stream Eligibility Web Map website (Ohio Environmental Protection Agency (OEPA)), the Project is located within an Eligible area and impacts to streams, if required, could be authorized by the United States Army Corps of Engineers (USACE) under the Nationwide Permit Conditions.

The watershed identified in the Project area is Honey-Creek-Little Scioto River (Hydrologic Unit Code (HUC): 050600010406). According to the OEPA 2014 Ohio Integrated Water Quality Monitoring and Assessment Scioto River (Upper) Watershed Report, the Honey Creek-Little Scioto River Watershed is listed as aquatic life, recreation, and fish tissue impaired. This watershed has been severely impacted by creosote contamination from industry in the City of Marion via loading from North Rock Swale Ditch. Additional sources of impairments include channelization, agriculture, contaminated sediment, livestock, septic sewers, and combined sewer overflow (OEPA 2018).

2.0 METHODOLOGY

Prior to conducting field surveys, digital and published county Natural Resources Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) 7.5-minute topographic maps were reviewed as an exercise to identify the occurrence and location of potential wetland areas (Figures 2A-2C). The purpose of the field survey was to assess whether wetlands and other "waters of the U.S." are present within the Project's survey boundary, which consisted of a 120-foot wide survey boundary centered along the purposed transmission route and identified work limits beyond the survey boundary such as access roads, work pads, and laydown yards (Figures 3A-3C).

AECOM ecologists walked the Project survey boundary, access roads, and work areas to conduct a wetland delineation and stream assessment. Initial field investigations were conducted on March 18 and 19, 2019. During the field survey, the physical boundaries of observed water features, if identified, were recorded using sub-decimeter capable Trimble Global Positioning System (GPS) units. The GPS data was imported into ArcMap GIS software, where the data was then reviewed and edited for accuracy.

2.1 WETLAND DELINEATION

The Project survey boundary was evaluated according to the procedures outlined in the USACE *1987 Wetland Delineation Manual (1987 Manual)* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (Regional Supplement)* (USACE 2010). The Regional Supplement was released in August 2010 by the USACE to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The *1987 Manual and Regional Supplement* define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

Since quantitative data were not available for any of the identified wetlands, AECOM utilized the routine delineation method described in *the 1987 Manual and Regional Supplement* that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. The methodology used to examine each parameter is described in the following sections.

Land uses observed within the Project survey boundary were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys.

2.1.1 Soils

Soils were examined for hydric soil characteristics using a spade shovel to extract soil samples. A *Munsell Soil Color Chart* (Kollmorgen Corporation 2010) 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 (Environmental Laboratory 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.

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 degrees Fahrenheit (^{o}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 *Regional Supplement* also states that if onsite data gathering is not practical, the growing season can be approximated by the number of days between the average (five years out of ten, or 50 percent probability) date of the last and first 28°F air temperature in the spring and fall, respectively. The National Weather Service WETS data obtained from the NRCS National Water and Climate Center reveals for Marion County that in an average year, this period lasts from April 16 to October 28, or about 195 days. In the Project area, five percent of the growing season equates to approximately ten days (USDA-NRCS 2019).

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and *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 2012).

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 U.S. Army Corps of Engineers *2016 National Wetland Plant List: Midwest Region* (Lichvar et al. 2016),

which encompasses the area of the Project. 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. Recent USACE guidance indicates that to the extent possible, the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year (USACE 2012).

2.1.4 Wetland Classifications

Wetlands were classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). If wetlands were identified within the survey boundary; they would typically be classified as freshwater, palustrine systems, which include non-tidal wetlands dominated by trees, shrubs, emergents, mosses, or lichens. The common palustrine wetland classification types are as follows:

- ***PEM*** – Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

- ***PSS*** – Palustrine scrub/shrub wetlands are characterized by woody vegetation that is less than three inches diameter at breast height (DBH), and greater than 3.28 feet tall. The woody angiosperms (i.e., small trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.

- ***PFO*** – Palustrine forested wetlands are characterized by woody vegetation that is three inches or more DBH, regardless of total height. These wetlands generally include an overstory of broad-leaved and needle-leaved trees, an understory or young saplings and shrubs, and an herbaceous layer.

- ***PUB*** – Palustrine unconsolidated bottom wetlands includes all open water wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones, and a vegetative cover less than 30 percent. Palustrine open water wetlands are characterized by the lack of large stable surfaces for plant and animal attachment.

- ***PAB*** – Palustrine aquatic bed wetlands are characterized by plants that grow principally on or below the surface of the water for most of the growing season in most years. These plants are best developed in relatively permanent water or under conditions of repeated flooding.

- ***PML*** – Palustrine moss-lichen wetlands includes areas where mosses or lichens cover at least 30 percent of substrates other than rock and where emergents, shrubs, or trees alone or in combination cover less than 30 percent.

- ***PUS*** – Palustrine unconsolidated shore wetlands are characterized by substrates lacking vegetation except for pioneer plants that become established during brief periods when growing conditions are favorable. Unconsolidated shore wetlands have less than 30% areal coverage of vegetation and less than 75 percent areal cover of stones, boulders or bedrock.

- ***PRB*** – Palustrine rock bottom wetlands includes all wetlands and deepwater habitats with substrates having an aerial cover of stones, boulders, or bedrock 75 percent or greater and vegetative cover of less than 30 percent. Rock bottom wetlands and deepwater habitats are characterized by substrates predominantly made up of stones, boulders, or bedrock.

For some wetlands, multiple Cowardin classifications may be present where more than one classification's vegetation is dominant (vegetation covers 30 percent or more of the substrate). Where multiple Cowardin classifications are present, the Cowardin classification of the plants that constitute the uppermost layer of vegetation is listed.

2.1.5 Ohio Rapid Assessment Method v. 5.0

The Ohio Environmental Protection Agency (OEPA) *Ohio Rapid Assessment Method for Wetlands* v. 5.0 (*ORAM*) was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under Section 401 of the Clean Water Act. 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* 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).

Category 1 Wetlands

Category 1 wetlands support minimal wildlife habitat, hydrological and recreational functions, and do not provide for or contain critical habitats for threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics: low species diversity, no significant habitat or wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are considered to be a resource that has been severely degraded or has a limited potential for restoration, or is of low ecological functionality.

Category 2 Wetlands

Category 2 wetlands "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Category 2 wetlands constitute the broad middle category of "good" quality wetlands, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past, but have been degraded to Category 2 status.

Category 3 Wetlands

Wetlands that are assigned to Category 3 have "...superior habitat, or superior hydrological or recreational functions." They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. A wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit "superior" hydrologic functions (e.g., flood retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

2.2 STREAM CROSSINGS

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and "designated uses" to all waters of the U.S. upstream to the highest reaches of the tributary streams. In addition, the Federal Water Pollution Control Act of 1972 and its 1977 and 1987 amendments require knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high water mark (OHWM). The USACE defines OHWM as "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" (USACE 2005).

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* (Rankin 2006) and *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3* (Ohio EPA 2012).

2.2.1 OEPA Qualitative Habitat Evaluation Index

The qualitative habitat evaluation index (QHEI) is designed to provide a rapid determination of habitat features that correspond to those physical factors that most affect fish communities and which are generally important to other aquatic life (*e.g.,* macroinvertebrates). The quantitative measure of habitat used to calibrate the QHEI score are Indices (or Index) of Biotic Integrity (IBI) for fish. In most instances the QHEI is sufficient to give an indication of habitat quality, and the intensive quantitative analysis used to measure the IBI is not necessary. It is the IBI, rather than the QHEI, that is directly correlated with the aquatic life use designation for a particular surface water.

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one square mile, if natural pools are greater than 15.75 inches, or if the water feature is shown as blue-line waterways on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the regulated public, the OEPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater streams (H are those with a watershed area less than or equal to 20 mi^2) versus larger streams (L are those with a watershed area greater than 20 mi^2). The Narrative Rating System includes: Very Poor (<30 H and L), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L) (Rankin 2006).

2.2.2 OEPA Primary Headwater Habitat Evaluation Index

Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or "branches") and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5-minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale and landscape position (Fritz et al. 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The headwater habitat evaluation index (HHEI) is a rapid field assessment method for physical habitat that can be used to appraise the biological potential of most Primary Headwater Habitat (PHWH) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a "defined bed and bank, with either continuous or periodically flowing water, with watershed area less than or equal to 1.0 mi^2 (259ha), *and* a maximum depth of water pools equal to or less than 15.75 inches" (Ohio EPA 2012).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are "Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams".

Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (Ohio EPA 2012). Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream.

Class 1 PHWH Streams: Class 1 PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (Ohio EPA 2012). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.

Class 2 PHWH Streams: Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (Ohio EPA 2012). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams: Class 3 PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

2.2.3 401 Eligibility Watersheds

Under the 401 Water Quality Certification for the 2017 Nationwide Permits (NWP), OEPA has limited the use of the expedited permits for impacts to high quality streams in Ohio. OEPA has developed a map/shapefile which designates Ohio watersheds into three categories:

Ineligible Areas: If any stream proposed to be impacted is located in an ineligible area, then impacts to that stream are not eligible for coverage under the NWPs and an individual 401 WQC will be required from OEPA.

Possibly Eligible Areas: Any stream proposed to be impacted which is located in a possibly eligible area will require additional field screenings. The pH value must be collected and a QHEI or HHEI assessment must be performed on the stream. Flow charts provided in the OEPA Final Signed WQC NWP 2017 (Ohio EPA 2017) will then be used to determine if stream impacts will be eligible for coverage under the NWP or if an individual 401 WQC is required.

Eligible Areas: Any impacts to streams located in eligible areas are eligible for coverage under the NWP.

3.0 RESULTS

AECOM delineated a total of six wetlands including four PEM, one PSS, one PFO/PSS wetland complexes. Additionally, AECOM identified a total of three streams including two intermittent streams and one perennial stream within the survey boundary. These wetlands and streams are discussed in the following sections.

3.1 WETLAND DELINEATION

3.1.1 Preliminary Soils Evaluation

Soils within each wetland were observed and documented as part of the delineation methodology. According to the USDA/NRCS Web Soil Surveys of Marion County, Ohio (USDA NRCS 2018) and the NRCS Hydric Soils Lists of Ohio, two soil map units are listed as hydric soils within the survey boundary. Additionally, four soil maps units are listed has hydric inclusions due to displaying hydric soils with a minor component of the soil map unit (USDA NRCS 2018). Table 1 provides a detailed overview of all soil series and soil map units within the Project survey boundary. Soil map units located within the Project survey boundary are shown on Figure 2A-2C.

TABLE 1
SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE CRISSINGER-KIRBY 138 kV TRANSMISSION LINE LOOP AND CRISSINGER SUBSTATION EXPANSION PROJECT SURVEY BOUNDARY

Soil Series	Symbol	Map Unit Description	Topographic Setting	Hydric[3]	Hydric Component (%)
Blount	Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	End Moraines on Till Plains	Yes*	Pewamo, end moraine (6)
	Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	End Moraines on Till Plains	Yes*	Pewamo, ground moraine (9)
Glynwood	GwA	Glynwood silt loam, 0 to 2 percent slopes	N/A[2]	No	N/A
	Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	Till plains	Yes*	Pewamo (6)
Martinsville	MaA	Martinsville loam, 0 to 2 percent slopes	N/A[2]	No	N/A
Milford	Mf	Milford silty clay loam, 0 to 2 percent slopes	Lake Plains	Yes	Milford (90) Houghton, undrained (3)
Ockley	OcA	Ockley loam, 0 to 2 percent slopes	N/A[2]	No	N/A
Pewamo	Pk	Pewamo silty clay loam, 0 to 1 percent slopes	Depressions on Till Plains	Yes	Pewamo (85) Minster (6)
Urban	UEBXA	Urban land-Aeric Epiaquents-Blount complex, 0 to 3 percent slopes	Till Plains	Yes*	Typic endoaquents, till substratum (5)

NOTES:
(1) Data sources include:
USDA. NRCS. 2018. Web Soil Survey. Available online at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
USDA. NRCS. 2018. National Hydric Soils List by State. Available online at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/
USDA. SCS. 1989. Soil Survey of Marion County, Ohio
(2) Web Soil Survey does not have an identified Topographic Setting.
(3) Soils that are identified as hydric with an asterisk represent soils with hydric inclusions within the identified topographic settings.

3.1.2 National Wetland Inventory Map Review

According to NWI maps of the Marion West, Ohio quadrangles, the Project survey corridor contains one mapped NWI palustrine, emergent, persistent, seasonally flooded (PEM1C) wetland. The location of the NWI mapped wetland is shown on Figures 2A-2C.

The PEM1C NWI mapped wetland's boundary was field verified as not being accurate to on-site conditions. This NWI mapped wetland boundary was identified as a delineated PFO/PSS wetland complex, Wetland CK-03a and CK-03b. The upland conditions of the NWI mapped wetland area located within the survey boundary are represented in this report by the upland data point reflecting the upland conditions of the Wetland CK-03a and CK-03b.

3.1.3 Delineated Wetlands

During the delineation, AECOM identified a total of six wetlands, ranging in size from less than <0.01 acre to 0.62 acres, within the Project survey boundary. Some wetland boundaries extend beyond these areas, but only what was identified within the Project survey boundary and work areas were assessed. The six wetlands within the Project survey boundary are of three different wetland habitat types: four PEM wetlands, one PSS wetland, and one PSS/PFO wetland complex. Table 2 provides a summary of the delineated wetlands within the Project survey boundary.

The locations and approximate extent of the wetlands identified within the Project survey boundary are shown on Figures 3A-3C. Completed USACE wetland determination and ORAM forms are provided in Appendices A and B, respectively. Color photographs taken of each wetland have been provided in Appendix D.

TABLE 2
DELINEATED WETLANDS WITHIN THE CRISSINGER-KIRBY 138 kV TRANSMISSION LINE LOOP AND CRISSINGER SUBSTATION EXPANSION PROJECT SURVEY BOUNDARY

Wetland Name	Latitude	Longitude	Cowardin Classification[1]	NWI Classification	ORAM Score	ORAM Category[2]	Acreage within Survey Boundary
Wetland CK-01	40.556180	-83.159257	PEM	N/A	4	Category 1	0.05
Wetland CK-02	40.556081	-83.168223	PEM	N/A	8	Category 1	0.62
Wetland CK-03a	40.556125	-83.170570	PFO	PEM1C	39	Category 2	0.26
Wetland CK-03b	40.555999	-83.170658	PSS				0.06
Wetland CK-04	40.556080	-83.171487	PEM	N/A	33	Modified Category 2[2]	<0.01
Wetland CK-05	40.556029	-83.178445	PEM	N/A	14	Category 1	0.12
Wetland CK-06	40.554785	-83.183108	PSS	N/A	12	Category 1	0.03
Total: 6	PEM: 4; PSS 1; 1 PSS/PFO						**1.15**

Cowardin Classification[1] : PEM = palustrine emergent; PSS = Palustrine scrub/shrub, PFO=palustrine forested
ORAM Category[2]: The Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and Scoring Forms state that if a wetland score falls into the transitional range, the wetland must be given the higher Category unless scientific data can prove it should be in a lower Category. Therefore, AECOM has assigned the identified wetland to the higher category level.

3.1.4 Delineated Wetlands ORAM V5.0 Results

Within the Project survey boundary, one wetland, Wetland CK-04, was identified within the transitional area between Category 1 and Category 2. Therefore, AECOM has assigned this wetland as a higher category level and classified it as a Modified Category 2 with an ORAM score of 33. One wetland, Wetland CK-03a and CK-03b, was identified as Category 2 and the remaining four wetlands, Wetland CK-01, CK-02, CK-05, and CK-06, were identified as Category 1. Wetland CK-03a and CK-03b received the highest ORAM score, 39, and Wetland CK-01 received the lowest ORAM score, 4. Table 2 displays a breakdown of ORAM scores and the ORAM forms are provided in Appendix B.

Category 1 Wetlands

Four Category 1 wetlands were identified within the Project survey boundary. The lowest scoring Category 1 wetland was Wetland CK-01, with a score of 4 and the highest scoring Category 1 wetland was Wetland CK-05, with a score of 14. The wetlands exhibited very narrow or narrow upland buffers and high intensive surrounding land use (e.g., cropping). The wetlands also exhibited poor plant community development with a moderate to extensive percentage of invasive species, and characteristically had habitat and hydrology in the early stages of recovering from previous manipulation due to mowing, clear cutting, selective cutting and other disturbances.

Category 2 Wetlands

Category 2 wetlands delineated within the Project boundary consisted of one modified Category 2 wetland, Wetland CK-04, with a score of 33, and a Category 2 wetland, Wetland CK-03a and CK-03b, with a score of 39. These wetlands exhibited medium upland buffers (forested land) and very low intensive surrounding land use (e.g. fallow fields). The wetlands also exhibited poor to fair plant community development with a moderate percentage of invasive species and had recovered habitat and hydrology from previous manipulation due to mowing and other likely disturbances.

Category 3 Wetlands

No Category 3 wetlands were identified during the field survey within the Project survey boundary.

3.2 STREAM CROSSINGS

AECOM identified three streams, totaling 1,237 linear feet, within the Project survey boundary, as listed in Table 3. The streams are comprised of two intermittent streams and one perennial stream. The locations of the streams identified within the survey boundary are shown on Figures 3A-3C.

HHEI evaluations were conducted on all three streams within the Project survey boundary. No QHEI evaluations were completed. AECOM evaluations were conducted at or near the proposed transmission line crossing for each stream. These streams were identified using USGS topographic maps, aerial photography, and field reconnaissance.

TABLE 3
DELINEATED STREAMS WITHIN THE CRISSINGER-KIRBY 138 kV TRANSMISSION LINE LOOP AND CRISSINGER SUBSTATION EXPANSION PROJECT SURVEY BOUNDARY

Report Name	Latitude	Longitude	Waterbody	Flow Regime	Form Used[1]	Score	Class or Narrative Description[2]	Bankfull Width (feet)	Maximum Pool Depth (inches)	OEPA 401 WQC Eligibility for Nationwide Permits[2]	Linear Feet Within Survey Boundary
Stream CK-01	40.5558948	-83.1653146	Unnamed Tributary (UNT) to Little Scioto River	Intermittent	HHEI	51	Modified Class 2	5	3	Eligible	474
Stream CK-02	40.5560517	-83.1679880	UNT to Little Scioto River	Intermittent	HHEI	55	Modified Class 2	4	6	Eligible	494
Stream CK-03	40.5560243	-83.1785388	UNT to Little Scioto River	Perennial	HHEI	55	Modified Class 2	8	18	Eligible	269
Total: 3											**1,237**

1. QHEI = Qualitative Habitat Evaluation Index, HHEI = Headwater Habitat Evaluation Index,
2. Class or Narrative Description provides the designated beneficial uses for assessed resources identified within the Ohio Administrative Code Chapter 3745-1 Water Quality Standards. In absence of a listed designation for a resource, AECOM included the Category assessment identify by the OEPA's Qualitative Habitat Evaluation Index (Rankin 2006) or Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3.
3. As defined by OEPA Division of Surface Water Stream Eligibility Map. Available online at: http://oepa.maps.arcgis.com/apps/webappviewer/index.html?id=e6b46d29a38f46229c1eb47deefe49b6

3.2.1 Qualitative Habitat Evaluation Index

No streams were identified as having drainage area greater than one square mile or contained natural pools greater than 40 cm. Therefore, no streams were assessed utilizing the QHEI methodology.

3.2.2 Primary Headwater Habitat Evaluation Index

Three headwater streams, totaling 1,237 linear feet, were identified within the Project survey boundary. All three streams surveyed were identified as Modified Class 2 streams. Completed HHEI forms for each stream are provided in Appendix C. Photographs of all streams identified during the field survey are provided in Appendix D.

Modified Class 1 Headwater Streams – No Modified Class 1 streams were identified within the Project survey boundary.

Modified Class 2 Headwater Stream – All three streams surveyed during field investigations were identified as Modified Class 2 headwater streams, totaling 1,237 linear feet. One stream had a score of 51 and the remaining two streams scores received a score of 55. Two streams were identified as intermittent streams and one, with a score of 55, was identified as a perennial stream. The substrates primarily consisted of silt with lesser amounts of gravel and sand. The streams showed evidence of agricultural activities (e.g., tilling) that resulted in the stream receiving a Modified Class 2 designation. The maximum pool depths for the intermittent streams were 3 inches and 6 inches, and average bankfull widths were 5 feet and 4 feet. The maximum pool depth for the perennial stream was 18 inches and the average bankfull width was 8 feet.

Modified Class 3 Headwater Stream - No Modified Class 3 streams were identified within the Project survey boundary.

3.3 PONDS

No ponds were surveyed within the Project's survey boundary.

4.0 SUMMARY

The ecological survey of the Project survey boundary identified a total of six wetlands and three streams. The six wetlands within the Project's survey boundary were classified as four PEM, one PSS, and one PSS/PFO wetland complexes. Two of the wetlands, CK-03a/CK-03b and CK-03, were identified as ORAM Category 2 wetlands. All other delineated wetlands were assessed as ORAM Category 1.

The three streams identified within the Project survey boundary including two intermittent streams and one perennial stream. All three streams were assessed using the HHEI methodology as Modified Class 2 streams as these features did not display a natural channel and the drainage areas for these resources were less than one mi^2.

AECOM has preliminarily determined that all assessed streams and wetlands within the Project survey boundary appear to be jurisdictional (i.e., waters of the U.S.), as they all appear to be tributaries or wetlands that flow into or combine with other streams (waters of the U.S). The locations of the streams and wetlands identified within the survey boundary are shown on Figures 3A-3C.

The information contained in this wetland delineation report is for a study boundary that may be much larger than the actual Project limits-of-disturbance; therefore, lengths and acreages listed in this report may not constitute the actual impacts of the Project defined in subsequent permit applications. If necessary, a separate report that identifies the actual Project impacts will be provided with agency submittals.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which AECOM is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the Project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of AECOM.

5.0 REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* Office of Biological Services, U.S. Fish and Wildlife Service, Washington, D.C.

Environmental Laboratory. 1987. *U.S. Corps of Engineers Wetlands Delineation Manual.* Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station: Vicksburg, Mississippi.

Fritz, K.M., B.R. Johnson, and D.M. Walters. 2006. *Field Operations Manual for Assessing the Hydrologic Permanence and Ecological Condition of Headwater Streams. EPA/600/ R-06/126*. U.S. Environmental Protection Agency, Office of Research and Development, Washington DC.

Kollmorgen Corporation. 2010. Munsell Soil Color Charts. Baltimore, Maryland.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Mack, John J. 2001. *Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and Scoring Forms. Ohio EPA Technical Report WET/2001-1*. Ohio Environmental Protection Agency, Division of Surface Water, 401/Wetland Ecology Unit, Columbus, Ohio.

National Geographic Society. 2013. Seamless Layer 2013 (Topo Source: Seamless Digital Raster Graphic-N.P.S. Natural Physical Map & U.S.G.S. Topographic Map i-cubed USGS Quad: Marion West, Ohio).

Ohio EPA. 2012. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams*. Version 3.0. Ohio EPA Division of Surface Water, Columbus, Ohio.

Ohio EPA. 2017. All Counties, Cities, and Townships in Ohio. Grant of Clean Water Act Section 401 Water Quality Certification. Authorization of discharge of dredge or fill material to various waters of the State for the following Nationwide Permits as published in January 6, 2017, Federal Register (Volume 82, Number 4) O EPA ID Number 165184 Access at: https://www.epa.ohio.gov/Portals/35/401/Final%20Signed%20401%20WQC%20NWP%202017.pdfs on 03/25/2019.

Ohio EPA. 2018. Integrated Water Quality Monitoring and Assessment Report. Accessed at https://www.epa.ohio.gov/dsw/tmdl/OhioIntegratedReport#123145148-2018 on 03/25/2019.

Rankin, Edward T. 2006. *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI)*. Ohio EPA Ecological Assessment Section, Division of Surface Water, Columbus, Ohio.

State of Ohio. 2018. Ohio Administrative Code, Chapter 3745-1: Water Quality Standards. Ohio Environmental Protection Agency, Division of Surface Water, Columbus, Ohio. Accessed at https://www.epa.ohio.gov/dsw/rules/3745_1#use%20designations on 03/25/2019.

U.S. Army Corps of Engineers (USACE). 2005. Regulatory Guidance Letter No. 05-05: Guidance on Ordinary High Water Mark Identification.

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, C. V. Noble, and J.R. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS). 1989. Soil Survey of Marion County, Ohio.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2017. Web Soil Survey, Marion County, Ohio. Available online at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2015. National Hydric Soils List. http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/. Accessed 03/25/2019.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2017. National Weather Service- Wetland Climate Evaluation Database (WETS Table). http://www.wcc.nrcs.usda.gov/climate/wetlands.html. Accessed 03/25/2019.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2019. Web Soil Survey (GIS Shapefile). http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed 03/25/2019.

United States Fish and Wildlife Service (USFWS). 2018. National Wetlands Inventory website. United States Department of the Interior, Fish and Wildlife Service, Washington, District of Columbia. Accessed at http://www.fws.gov/wetlands on 03/25/2019.

Crissinger Substation

40.5563
-83.1582

40.5546
-83.183

Marion County

Oak Knoll

LEGEND

- Existing Substation
- Proposed Crissinger-Kirby 138kV

0 2,000 4,000
Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps

ATSI

Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Expansion Project

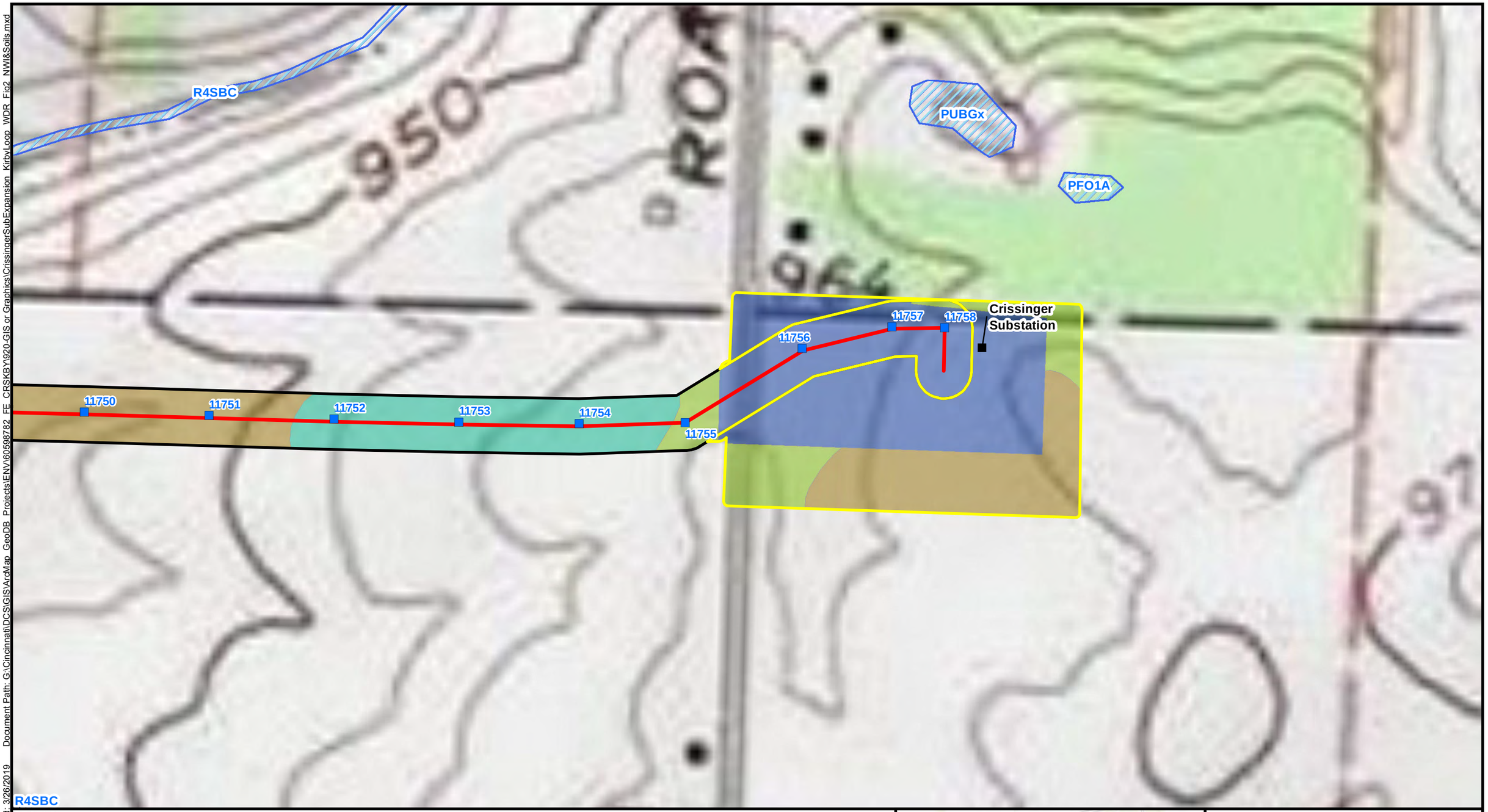
FIGURE 1
OVERVIEW MAP

JOB NO. 60598782

AECOM

Document Path: G:\Cincinnati\DCS\GIS\ArcMap GeoDB Projects\ENV\60598782 FE CRSKBY\920-GIS or Graphics\CrissingerSubExpansion KirbyLoop WDR Fig1 Overview.mxd

Date Saved: 3/26/2019



R4SBC

LEGEND

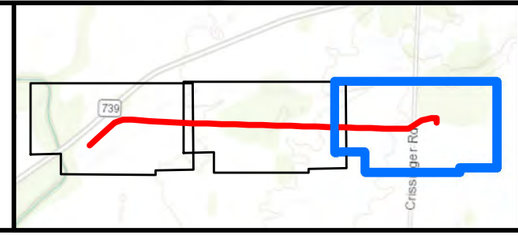
- Proposed Structure
- Proposed Crissinger-Kirby 138kV
- Project 120-Foot Survey Boundary
- Survey Boundary for Access Roads and Work Areas
- National Wetland Inventory (NWI)

MUSYM

Ble1A1	MaA
Blg1A1	Mf
GwA	OcA
Gwe5B2	Pk
	UEBXA

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps



ATSI

Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Expansion Project

FIGURE 2 A
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60598782

AECOM

R4SBC

PEM1C

R4SBC

11739 11740 11741 11742 11743 11744 11745 11746 11747 11748 11749 11750

LEGEND

- Proposed Structure
- Proposed Crissinger-Kirby 138kV
- Project 120-Foot Survey Boundary
- Survey Boundary for Access Roads and Work Areas
- National Wetland Inventory (NWI)

MUSYM

Ble1A1	MaA
Blg1A1	Mf
GwA	OcA
Gwe5B2	Pk
	UEBXA

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps

739

Crissinger Rd

ATSI

Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Expansion Project

FIGURE 2 B
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60598782

AECOM

Document Path: G:\Cincinnati\DCS\GIS\ArcMap GeoDB Projects\ENV\60598782 FE CRSKBY1920-GIS or Graphics\CrissingerSubExpansion KirbyLoop WDR Fig2 NWI&Soils.mxd

Date Saved: 3/26/2019

PEM1C

PFO1C

R5UBH

PFO1C

PSS1C

R4SBC

11731

11732

11733

11734

11735

11736

11737

11738

LEGEND

- Proposed Structure
- Proposed Crissinger-Kirby 138kV
- Project 120-Foot Survey Boundary
- Survey Boundary for Access Roads and Work Areas
- National Wetland Inventory (NWI)

MUSYM

Ble1A1	MaA
Blg1A1	Mf
GwA	OcA
Gwe5B2	Pk
	UEBXA

0 200 400

Feet

BASE MAP SOURCE:
ArcGIS Online, USA Topo Maps

739

Crissinger Rd

ATSI

Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Expansion Project

FIGURE 2 C
SOIL MAP UNIT AND NATIONAL WETLAND INVENTORY MAP

JOB NO. 60598782

AECOM

Document Path: G:\Cincinnati\DCS\GIS\ArcMap GeoDB Projects\ENV\60598782 FE CRSKBY1920-GIS or Graphics\CrissingerSubExpansion KirbyLoop WDR Fig3 DelineatedFeatures.mxd

Date Saved: 3/27/2019

Stream CK-01
UNT to Little Scioto River
HHEI: 51
5 FT

11750 11751 11752 11753 11754 11755 11756 11757 11758

Crissinger Substation

Wetland CK-01
PEM - Category 1

Crissinger Rd

105

Marion County

bing

LEGEND

- Proposed Structure
- Existing Substation
- Proposed Crissinger-Kirby 138kV
- Project 120-Foot Survey Boundary
- Survey Boundary for Access Roads and Work Areas
- Assumed 50ft Right-of-Way
- Proposed Access Road
- Intermittent
- Perennial

Delineated Wetland Habitat Type

- PEM
- PSS
- PFO
- Upland Data Point
- Wetland Data Point

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, Bing Maps Aerial

739

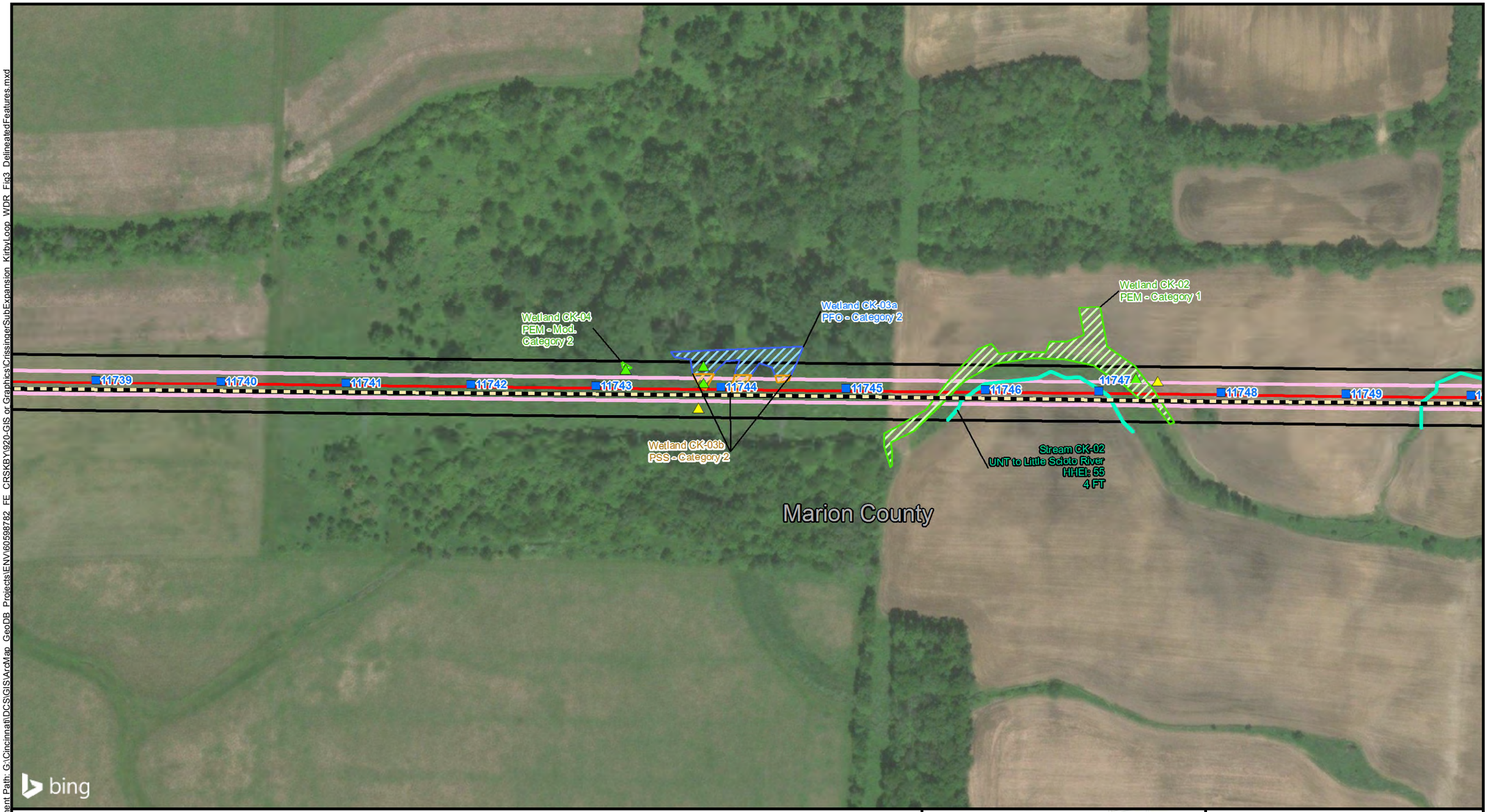
ATSI

Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Expansion Project

FIGURE 3 A
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60598782

AECOM



LEGEND

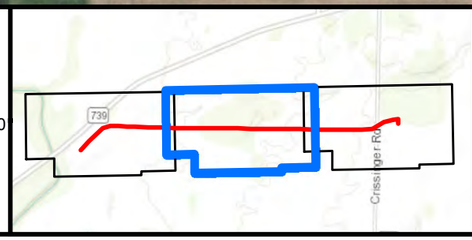
- Proposed Structure
- Existing Substation
- Proposed Crissinger-Kirby 138kV
- Project 120-Foot Survey Boundary
- Survey Boundary for Access Roads and Work Areas
- Assumed 50ft Right-of-Way
- Proposed Access Road
- Intermittent
- Perennial

Delineated Wetland Habitat Type

- PEM
- PSS
- PFO
- Upland Data Point
- Wetland Data Point

0 200 400
Feet

BASE MAP SOURCE:
ArcGIS Online, Bing Maps Aerial



ATSI

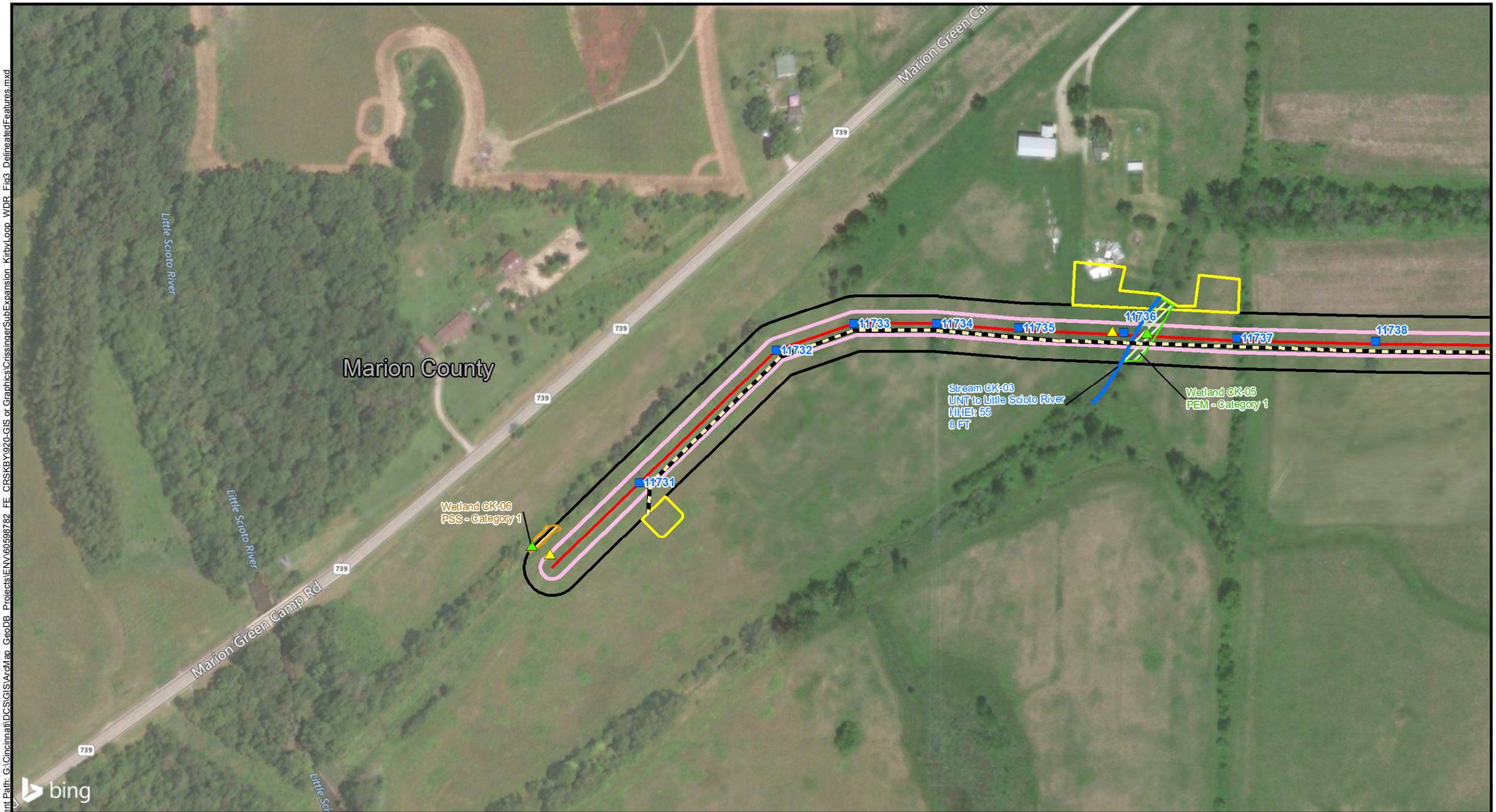
Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Expansion Project

FIGURE 3 B
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60598782

AECOM

Date Saved: 3/27/2019 Document Path: G:\Cincinnati\DCS\GIS\ArcMap GeoDB Projects\ENV\60598782 FE CRSKBY1920-GIS or Graphics\CrissingerSubExpansion KirbyLoop WDR Fig3 DelineatedFeatures.mxd



LEGEND

- Proposed Structure
- Existing Substation
- Proposed Crissinger-Kirby 138kV
- Project 120-Foot Survey Boundary
- Survey Boundary for Access Roads and Work Areas
- Assumed 50ft Right-of-Way
- Proposed Access Road
- Intermittent
- Perennial

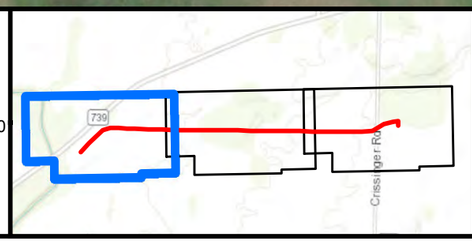
Delineated Wetland Habitat Type

- PEM
- PSS
- PFO
- Upland Data Point
- Wetland Data Point

0 200 400

Feet

BASE MAP SOURCE:
ArcGIS Online, Bing Maps Aerial



ATSI

Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Expansion Project

FIGURE 3 C
WETLAND DELINEATION AND STREAM ASSESSMENT MAP

JOB NO. 60598782

AECOM

Document Path: G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60598782_FE_CRSKBY1920-GIS or Graphics\CrissingerSubExpansion_KirbyLoop_WDR_Fig3_DelineatedFeatures.mxd

Date Saved: 3/27/2019

APPENDIX A

U.S. ARMY CORPS OF ENGINEERS WETLAND AND UPLAND FORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV | City/County: Marion | Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. | State: OH | Sampling Point: **Wetland CK-01**

Investigator(s): M.R.Kline, R.C.Massa | Section, Township, Range: S | T T6S | R R15E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): concave

Slope: 1.0% / 0.6 ° | Lat.: 40.556182 | Long.: -83.159427 | Datum: NAD 83

Soil Map Unit Name: UEBXA; Urban land-Aeric Epiaquents-Blount complex, 0 to 3 percent slopes | NWI classification: N/A

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

Are Vegetation ☑ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

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

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

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

Remarks:
This PEM swale originates at a roadside ditch and drains east toward the existing substation. Wetland is being influenced by surface runoff, and drains to a culvert beside the substation. Vegetation has been mowed within the swale. The wetland boundary follows edge of swale.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	0
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Typha angustifolia	25	☑ 41.7%	OBL
2. Eleocharis palustris	25	☑ 41.7%	OBL
3. Carex lurida	10	☐ 16.7%	OBL
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	60	= Total Cover	
Woody Vine Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		60 (B)

Prevalence Index = B/A = 1.000

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation has been recently mowed.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Wetland CK-01**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	3/2	80	7.5YR	5/6	20	C	M	Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 1

Water Table Present? Yes ◉ No ○ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Source of hydrology is surface runoff.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV City/County: Marion Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. State: OH Sampling Point: **UPL CK-01**

Investigator(s): M.R.Kline, R.C.Massa Section, Township, Range: S T T6S R R15E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex

Slope: 1.0% / 0.6 ° Lat.: 40.556011 Long.: -83.160228 Datum: NAD 83

Soil Map Unit Name: Ble1A1; Blount silt loam, end moraine, 0 to 2 percent slopes NWI classification: N/A

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

Are Vegetation ☑ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

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

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

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

Remarks:
Upland data point for Wetland CK-01. Surrounding land use is agriculture.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Glycine max	100	☑	100.0%	UPL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.000

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation is mowed. Soybean remnants in field from last growing season.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **UPL CK-01**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	4/2	100						Silt Loam	
16-18	10YR	6/1	75	10YR	5/8	25	C	M	Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No source of hydrology.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV | City/County: Marion | Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. | State: OH | Sampling Point: **Wetland CK-02**

Investigator(s): M.R.Kline, R.C.Massa | Section, Township, Range: S | T T6S | R R15E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): concave

Slope: 1.0% / 0.6 ° | Lat.: 40.556043 | Long.: -83.167521 | Datum: NAD 83

Soil Map Unit Name: Pk: Pewamo silty clay loam, 0 to 1 percent slopes | NWI classification: N/A

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

Are Vegetation ☑ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

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

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

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

Remarks:
This PEM swale begins outside of the study area where an intermittent stream loses its channel and flows across the suface of an agricultural field. Water follows a slight depression until it becomes a watercourse outside of the study area again. The wetland boundary follows edge of depression.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	25	☑ 45.5%	FACW
2. Setaria pumila	15	☑ 27.3%	FAC
3. Glycine max	15	☑ 27.3%	UPL
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	55	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	55 (A)		170 (B)

Prevalence Index = B/A = 3.091

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation has been recently mowed and wetalnd occurs in agricultural field that is regularly tilled.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Wetland CK-02**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR	2/1	100						Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☑ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 1

Water Table Present? Yes ◉ No ○ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Source of hydrology is surface runoff and stream flow.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV City/County: Marion Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. State: OH Sampling Point: **UPL CK-02**

Investigator(s): M.R.Kline, R.C.Massa Section, Township, Range: S T T6S R R15E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): convex

Slope: 1.0% / 0.6 ° Lat.: 40.556026 Long.: -83.167352 Datum: NAD 83

Soil Map Unit Name: Pk: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

Are Vegetation ☑ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

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

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

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

Remarks:
Upland data point for Wetland CK-02. Surrounding land use is agriculture.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Glycine max	100	☑	100.0%	UPL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5.000

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation is mowed. Soybean remnants in field from last growing season.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **UPL CK-02**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR	4/2	100						Silt Loam	
16-18	10YR	4/2	80	10YR	5/8	20	C	M	Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No source of hydrology.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV City/County: Marion Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. State: OH Sampling Point: **Wetland CK-03a**

Investigator(s): M.R.Kline, R.C.Massa Section, Township, Range: S T T6S R R15E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave

Slope: 1.0% / 0.6 ° Lat.: 40.556035 Long.: -83.170887 Datum: NAD 83

Soil Map Unit Name: Gwe5B2; Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded NWI classification: PEM1C

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

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

Remarks:
This PFO section of a PSS/PFO wetland complex is located in a depression adjacent to an existing transmission line right-of-way. The wetland is influenced by a high water table and surface runoff. The wetland boundary follows edge of depression.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Acer rubrum	20	☑ 66.7%	FAC
2. Quercus alba	5	☐ 16.7%	FACU
3. Carya ovata	5	☐ 16.7%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	0
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Ailanthus altissima	20	☑ 66.7%	FACU
2. Lonicera morrowii	10	☑ 33.3%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	30	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	30	☑ 46.2%	FACW
2. Carex lurida	25	☑ 38.5%	OBL
3. Toxicodendron radicans	10	☐ 15.4%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	65	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	30	x 2 =	60
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	125 (A)		335 (B)

Prevalence Index = B/A = 2.680

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Wetland CK-03a**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	5/2	80	10YR	5/8	20	C	M	Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ◉ No ○ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 4

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Source of hydrology is high water table.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV City/County: Marion Sampling Date: 19-Mar-19

Applicant/Owner: American Transmission Systems, Inc. State: OH Sampling Point: **Wetland CK-03b**

Investigator(s): M.R.Kline, R.C.Massa Section, Township, Range: S T T6S R R15E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave

Slope: 1.0% / 0.6 ° Lat.: 40.555993 Long.: -83.170885 Datum: NAD 83

Soil Map Unit Name: Gwe5B2; Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded NWI classification: PEM1C

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

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

Remarks:
This PSS section of a PSS/PFO wetland complex is located in a depression adjacent to an existing transmission line right-of-way, where the right-of-way has been cleared of vegetation in the past. The wetland is influenced by a high water table and surface runoff. The wetland boundary follows edge of

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	0
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Ailanthus altissima	30	☑ 46.2%	FACU
2. Lonicera morrowii	10	☐ 15.4%	FACU
3. Cornus amomum	10	☐ 15.4%	FACW
4. Rosa multiflora	15	☑ 23.1%	FACU
5.	0	☐ 0.0%	
	65	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	35	☑ 58.3%	FACW
2. Carex lurida	15	☑ 25.0%	OBL
3. Toxicodendron radicans	10	☐ 16.7%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	60	= Total Cover	
Woody Vine Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	45	x 2 =	90
FAC species	10	x 3 =	30
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	125 (A)		355 (B)

Prevalence Index = B/A = 2.840

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Wetland CK-03b**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	5/2	80	10YR	5/8	20	C	M	Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ◉ No ○ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 4

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Source of hydrology is high water table.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV | City/County: Marion | Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. | State: OH | Sampling Point: **Wetland CK-04**

Investigator(s): M.R.Kline, R.C.Massa | Section, Township, Range: S | T T6S | R R15E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): concave

Slope: 1.0% / 0.6 ° | Lat.: 40.556073 | Long.: -83.171489 | Datum: NAD 83

Soil Map Unit Name: Ble1A1; Blount silt loam, end moraine, 0 to 2 percent slopes | NWI classification: PEM1C

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

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

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

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

Hydrophytic Vegetation Present?	Yes (●) No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Hydric Soil Present?	Yes (●) No ( )	
Wetland Hydrology Present?	Yes (●) No ( )	

Remarks:
This PEM wetland is a small, wet depression that is surrounded by upland forest. Wetland is isolated and has a high water table. The wetland boundary follows edge of depression.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: None)			
1.	0	[ ] 0.0%	
2.	0	[ ] 0.0%	
3.	0	[ ] 0.0%	
4.	0	[ ] 0.0%	
5.	0	[ ] 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. Lonicera morrowii	2	[✓] 50.0%	FACU
2. Rosa multiflora	2	[✓] 50.0%	FACU
3.	0	[ ] 0.0%	
4.	0	[ ] 0.0%	
5.	0	[ ] 0.0%	
	4	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	20	[✓] 100.0%	FACW
2.	0	[ ] 0.0%	
3.	0	[ ] 0.0%	
4.	0	[ ] 0.0%	
5.	0	[ ] 0.0%	
6.	0	[ ] 0.0%	
7.	0	[ ] 0.0%	
8.	0	[ ] 0.0%	
9.	0	[ ] 0.0%	
10.	0	[ ] 0.0%	
	20	= Total Cover	
Woody Vine Stratum (Plot size: None)			
1.	0	[ ] 0.0%	
2.	0	[ ] 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	24 (A)		56 (B)

Prevalence Index = B/A = 2.333

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: (Include photo numbers here or on a separate sheet.)
Sparse vegetation in concave surface.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Wetland CK-04**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y	3/2	90	10YR	5/6	10	C	M	Silty Clay Loam	
14-16	2.5Y	5/2	80	10YR	5/8	20	C	M	Silty Clay	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ◉ No ○ Depth (inches): 5

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 5

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Source of hydrology is high water table.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV | City/County: Marion | Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. | State: OH | Sampling Point: **JPL CK-04 & CK-03a/03b**

Investigator(s): M.R.Kline, R.C.Massa | Section, Township, Range: S | T T6S | R R15E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): convex

Slope: 1.0% / 0.6 ° | Lat.: 40.555846 | Long.: -83.170921 | Datum: NAD 83

Soil Map Unit Name: Gwe5B2; Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded | NWI classification: N/A

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

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

Remarks:
Upland data point for Wetlands CK-04, CK-03a, and CK-03b. Surrounding land use is forest and transmission line right-of-way.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: None)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	0
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)				
1. Rosa multiflora	25	☑	45.5%	FACU
2. Lonicera morrowii	20	☑	36.4%	FACU
3. Rubus allegheniensis	10	☐	18.2%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	55	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Solidago canadensis	25	☑	33.3%	FACU
2. Lolium perenne	25	☑	33.3%	FACU
3. Dactylis glomerata	20	☑	26.7%	FACU
4. Daucus carota	5	☐	6.7%	UPL
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	75	= Total Cover		
Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	125	x 4 =	500
UPL species	5	x 5 =	25
Column Totals:	130 (A)		525 (B)

Prevalence Index = B/A = 4.038

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **UPL CK-04 & CK-03a/03**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100					Silt Loam	
4-16	10YR	5/4	100					Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No source of hydrology.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV City/County: Marion Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. State: OH Sampling Point: **Wetland CK-05**

Investigator(s): M.R.Kline, R.C.Massa Section, Township, Range: S T T6S R R15E

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): concave

Slope: 1.0% / 0.6 ° Lat.: 40.556025 Long.: -83.178451 Datum: NAD 83

Soil Map Unit Name: Pk: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

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

Remarks:
This PEM wetland occurs on the floodplain of a perennial watercourse. The wetland is within a slight depression that is seasonaly saturated. The wetland boundary follows edge of depression and hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Phalaris arundinacea	100	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.000

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Wetland CK-05**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc [2]	Texture	Remarks
0-16	10YR	3/2	95	10YR	4/6	5	C	M	Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ◉ No ○ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Source of hydrology is seasonal flooding.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV City/County: Marion Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. State: OH Sampling Point: **UPL CK-05**

Investigator(s): M.R.Kline, R.C.Massa Section, Township, Range: S T T6S R R15E

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

Slope: 1.0% / 0.6 ° Lat.: 40.556036 Long.: -83.178723 Datum: NAD 83

Soil Map Unit Name: Pk: Pewamo silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

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

Remarks:
Upland data point for Wetland CK-05. Surrounding land use is fallow field.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	0
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Dactylis glomerata	75	☑ 50.0%	FACU
2. Daucus carota	25	☑ 16.7%	UPL
3. Lolium perenne	25	☑ 16.7%	FACU
4. Solidago canadensis	25	☑ 16.7%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
	150	= Total Cover	
Woody Vine Stratum (Plot size: None)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	125	x 4 =	500
UPL species	25	x 5 =	125
Column Totals:	150 (A)		625 (B)

Prevalence Index = B/A = 4.167

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **UPL CK-05**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	3/1	100					Silt Loam	
16-18	10YR	6/8	100					Sandy Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No source of hydrology.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV | City/County: Marion | Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. | State: OH | Sampling Point: **Wetland CK-06**

Investigator(s): M.R.Kline, R.C.Massa | Section, Township, Range: S | T T6S | R R15E

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): concave

Slope: 1.0% / 0.6 ° | Lat.: 40.554742 | Long.: -83.183196 | Datum: NAD 83

Soil Map Unit Name: MaA; Martinsville loam, 0 to 2 percent slopes | NWI classification: N/A

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

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

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

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

Remarks:
This PSS wetland is located within a swale along the toe-of-slope of a former railroad bed. The depression is collecting some surface runoff from the surrounding area. The wetland boundary follows toe-of-slope and edge of depression.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	0
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)				
1. Cornus amomum	60	☑	85.7%	FACW
2. Acer negundo	5	☐	7.1%	FAC
3. Ulmus rubra	5	☐	7.1%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	70	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Phalaris arundinacea	40	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	40	= Total Cover		
Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		230 (B)

Prevalence Index = B/A = 2.091

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **Wetland CK-06**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc [2]	Texture	Remarks
0-16	2.5Y	3/2	90	10YR	5/6	10	C	M	Silty Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2] Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes ◉ No ○ Depth (inches): 5

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 5

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Source of hydrology is surface runoff.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Crissinger-Kirby 138 kV City/County: Marion Sampling Date: 18-Mar-19

Applicant/Owner: American Transmission Systems, Inc. State: OH Sampling Point: **UPL CK-06**

Investigator(s): M.R.Kline, R.C.Massa Section, Township, Range: S T T6S R R15E

Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): convex

Slope: 1.0% / 0.6 ° Lat.: 40.554693 Long.: -83.183055 Datum: NAD 83

Soil Map Unit Name: Gwe5B2; Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded NWI classification: N/A

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

Are Vegetation ☐, Soil ☑, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ◉

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

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

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

Remarks:
Upland data point for Wetland CK-06. Surrounding land use is fallow field.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	0
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)				
1. Rubus allegheniensis	10	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	10	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. Dactylis glomerata	75	☑	62.5%	FACU
2. Lolium perenne	25	☑	20.8%	FACU
3. Daucus carota	10	☐	8.3%	UPL
4. Cirsium arvense	10	☐	8.3%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	120	= Total Cover		
Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	120	x 4 =	480
UPL species	10	x 5 =	50
Column Totals:	130 (A)		530 (B)

Prevalence Index = B/A = 4.077

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ○ No ◉

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

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

SOIL

Sampling Point: **UPL CK-06**

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	3/1	100						Silt Loam	50% rock

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining. M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils [3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Sample pit on what seems to be an old railroad bed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

No source of hydrology.

APPENDIX B

OEPA WETLAND ORAM FORMS

Wetland CK-01

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-01

0 | 0 Metric 1. Wetland Area (size).

max 6 pts | subtotal

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

0.01 acres

1 | 1 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
x	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
x	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

4.0 | 5.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select one.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

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

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

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

Check all disturbances observed

x	ditch		point source (nonstormwater)
	tile	x	filling/grading
	dike		road bed/RR track
	weir		dredging
x	stormwater input		Other:

3 | 8 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
	Recovered (3)
	Recovering (2)
x	Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
	Fair (3)
	Poor to fair (2)
x	Poor (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
	Recovering (3)
x	Recent or no recovery (1)

Check all disturbances observed

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

8
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland CK-01

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-01

	8
	subtotal this page
0	8
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

-4	4
max 20pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.

Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] None (0)

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

- [x] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

Category 1

4	**GRAND TOTAL(max 100 pts)**

Wetland CK-02

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-02

Metric 1. Wetland Area (size).

1 (max 6 pts) | 1 (subtotal)

Select one size class and assign score.

0.06 acres

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 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) (2pts)
- [x] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1 (max 14 pts.) | 2 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7.0 (max 30 pts.) | 9.0 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [x] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select one.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

3 (max 20 pts.) | 12 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [x] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

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

12 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Wetland CK-02

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-02

	12
	subtotal this page
0	12
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

-4	8
max 20pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.

Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] None (0)

6c. Coverage of invasive plants. Refer

Table 1 ORAM long form for list. Add or deduct points for coverage

- [x] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

Category 1

8	**GRAND TOTAL(max 100 pts)**

Wetland CK-03a and CK-03b

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-03a&b

Metric 1. Wetland Area (size).

2 | 2 (max 6 pts | subtotal)

Select one size class and assign score.

0.04 acres

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 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) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

11 | 13 (max 14 pts. | subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [x] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

13.0 | 26.0 (max 30 pts. | subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [x] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select one.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

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

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

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

Check all disturbances observed

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

Metric 4. Habitat Alteration and Development.

12 | 38 (max 20 pts. | subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [x] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

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

38
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland CK-03a and CK-03b

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-03a&b

38
subtotal this page

0 | 38 **Metric 5. Special Wetlands.**

max 10 pts. | subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

1 | 39 **Metric 6. Plant communities, interspersion, microtopography.**

max 20pts. | subtotal

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [1] Shrub
- [1] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.

Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [x] Low (1)
- [ ] None (0)

6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [x] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

Category 2

39 **GRAND TOTAL(max 100 pts)**

Wetland CK-04

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-04

0 | 0 Metric 1. Wetland Area (size).

max 6 pts | subtotal

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

0.03 acres

11 | 11 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
x	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

x	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

13.0 | 24.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
x	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select one.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

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

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

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

Check all disturbances observed

	ditch		point source (nonstormwater)
	tile		filling/grading
	dike		road bed/RR track
	weir		dredging
	stormwater input		Other:

11 | 35 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
x	Recovered (3)
	Recovering (2)
	Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
	Fair (3)
x	Poor to fair (2)
	Poor (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
x	Recovered (6)
	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

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

35
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland CK-04

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-04

35
subtotal this page

0 | 35 — **Metric 5. Special Wetlands.**

max 10 pts. | subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

-2 | 33 — **Metric 6. Plant communities, interspersion, microtopography.**

max 20pts. | subtotal

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.

Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] None (0)

6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [x] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

Mod. Category 2

33 **GRAND TOTAL(max 100 pts)**

Wetland CK-05

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-05

Metric 1. Wetland Area (size).

max 6 pts	subtotal
1	1

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
x	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
	<0.1 acres (0.04ha) (0 pts)

0.02 acres

Metric 2. Upland buffers and surrounding land use.

max 14 pts.	subtotal
2	3

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
x	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
x	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

max 30 pts.	subtotal
9.0	12.0

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
x	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select one.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

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

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

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

Check all disturbances observed

	ditch		point source (nonstormwater)
	tile	x	filling/grading
	dike		road bed/RR track
	weir		dredging
	stormwater input		Other:

Metric 4. Habitat Alteration and Development.

max 20 pts.	subtotal
6	18

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
	Recovered (3)
x	Recovering (2)
	Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
	Fair (3)
	Poor to fair (2)
x	Poor (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

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

subtotal this page	
18	ORAM v. 5.0 Field Form Quantitative Rating

Wetland CK-05

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-05

	18
	subtotal this page
0	**18**
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

-4	**14**
max 20pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.

Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] None (0)

6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add or deduct points for coverage

- [x] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

Category 1

14	**GRAND TOTAL(max 100 pts)**

Wetland CK-06

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-06

0 | 0 Metric 1. Wetland Area (size).

max 6 pts | subtotal

Select one size class and assign score.

	>50 acres (>20.2ha) (6 pts)
	25 to <50 acres (10.1 to <20.2ha) (5 pts)
	10 to <25 acres (4 to <10.1ha) (4 pts)
	3 to <10 acres (1.2 to <4ha) (3 pts)
	0.3 to <3 acres (0.12 to <1.2ha) (2pts)
	0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
x	<0.1 acres (0.04ha) (0 pts)

0.05 acres

2 | 2 Metric 2. Upland buffers and surrounding land use.

max 14 pts. | subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

	WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
	MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
x	NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
	VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

	VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
	LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
x	HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

6.0 | 8.0 Metric 3. Hydrology.

max 30 pts. | subtotal

3a. Sources of Water. Score all that apply.

	High pH groundwater (5)
	Other groundwater (3)
x	Precipitation (1)
	Seasonal/Intermittent surface water (3)
	Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

	100 year floodplain (1)
	Between stream/lake and other human use (1)
	Part of wetland/upland (e.g. forest), complex (1)
	Part of riparian or upland corridor (1)

3c. Maximum water depth. Select one.

	>0.7 (27.6in) (3)
	0.4 to 0.7m (15.7 to 27.6in) (2)
x	<0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

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

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

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

Check all disturbances observed

	ditch		point source (nonstormwater)
	tile	x	filling/grading
	dike	x	road bed/RR track
	weir		dredging
	stormwater input		Other:

6 | 14 Metric 4. Habitat Alteration and Development.

max 20 pts. | subtotal

4a. Substrate disturbance. Score one or double check and average.

	None or none apparent (4)
	Recovered (3)
x	Recovering (2)
	Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

	Excellent (7)
	Very good (6)
	Good (5)
	Moderately good (4)
	Fair (3)
	Poor to fair (2)
x	Poor (1)

4c. Habitat alteration. Score one or double check and average.

	None or none apparent (9)
	Recovered (6)
x	Recovering (3)
	Recent or no recovery (1)

Check all disturbances observed

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

14
subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Wetland CK-06

Site: ATSI Crissinger-Kirby	Rater(s): M.R.Kline, R.C.Massa	Date: 3/18/2019

Field Id:
Wetland CK-06

	14
	subtotal this page
0	**14**
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Praires (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 5 Qualitative Rating (-10)

-2	**12**
max 20pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [ ] Emergent
- [1] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.

Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [x] None (0)

6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [x] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

	Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species
	Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generallyw/o presence of rare threatened or endangered spp to
	A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

Category 1

12	**GRAND TOTAL(max 100 pts)**

APPENDIX C

OEPA HHEI STREAM FORMS

Stream CK-01

Modified Class 2

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 54

SITE NAME/LOCATION: ATSI Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Exp.

HH-MRK-001 INT | SITE NUMBER: | RIVER BASIN: 05060001 | DRAINAGE AREA (mi²): 0.10

LENGTH OF STREAM REACH (ft): 200 | LAT.: 40.55589 | LONG.: -83.16531 | RIVER CODE: | RIVER MILE: N/A

DATE: 03/18/19 | SCORER: MRK/RCM | COMMENTS: Intermittent

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

Channelized through agricultural field

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	50%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	10%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

19

A + B

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

☐	> 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]

Pool Depth Max = 30

15

COMMENTS: **MAXIMUM POOL DEPTH** (Inches): 3.00

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

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (<=3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

Bankfull Width Max=30

COMMENTS: **AVERAGE BANKFULL WIDTH** (Feet): 5.00

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Surrounding land use is agriculture

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☑ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Little Scioto River (Modified Warmwater Habitat)** Distance from Evaluated Stream **1.26**

☐ 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: **Marion West** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Marion** Township / City: **Pleasant Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **03/16/19** Quantity: **0.10**

Photograph Information: **3 photos, upstream, downsteam, substrate**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

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: _____

Overall Stability of BOTH Stream Banks (check one): Stable ☐ **Moderately Stable** ☐ **Unstable** ☐

BIOTIC EVALUATION

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

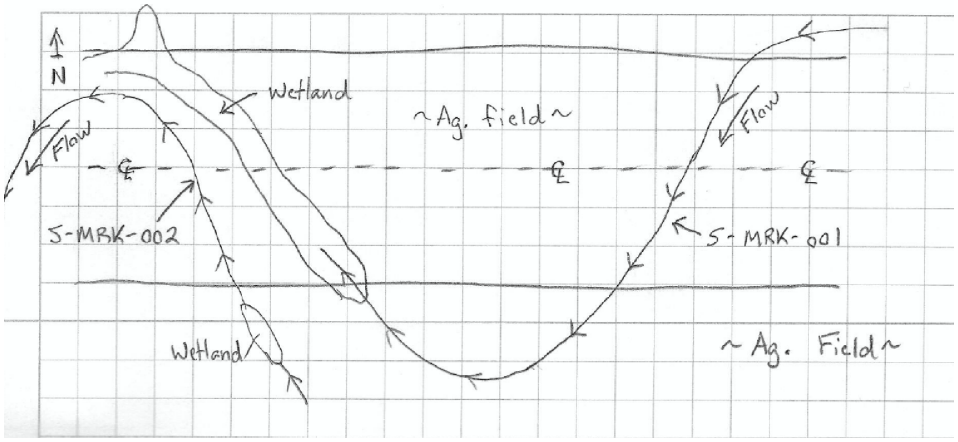
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: **No macroinvertebrates observed**

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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

FLOW →



Save as pdf Reset Form

Stream CK-02

Modified Class 2

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 54

SITE NAME/LOCATION: ATSI Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Exp.

HH-MRK-002 INT SITE NUMBER: | RIVER BASIN: 05060001 | DRAINAGE AREA (mi²): 0.17

LENGTH OF STREAM REACH (ft): 494 | LAT.: 40.55605 | LONG.: -83.16799 | RIVER CODE: | RIVER MILE: N/A

DATE: 03/18/19 | SCORER: MRK/RCM | COMMENTS: Intermittent

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

Channelized through agricultural field

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	70%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	25%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	5%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40

19

A + B

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

☐	> 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** (Inches): 6.00

Pool Depth Max = 30

15

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

☐	> 4.0 meters (> 13') [30 pts]	☑	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS | **AVERAGE BANKFULL WIDTH** (Feet): 4.00

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Surrounding land use is agriculture

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None ☑ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Little Scioto River (Modified Warmwater Habitat)** Distance from Evaluated Stream **1.00**

☐ 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: **Marion West** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Marion** Township / City: **Pleasant Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **03/16/19** Quantity: **0.10**

Photograph Information: **3 photos, upstream, downsteam, substrate**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**

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: _____

Overall Stability of BOTH Stream Banks (check one): Stable ☐ **Moderately Stable** ☐ **Unstable** ☑

BIOTIC EVALUATION

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

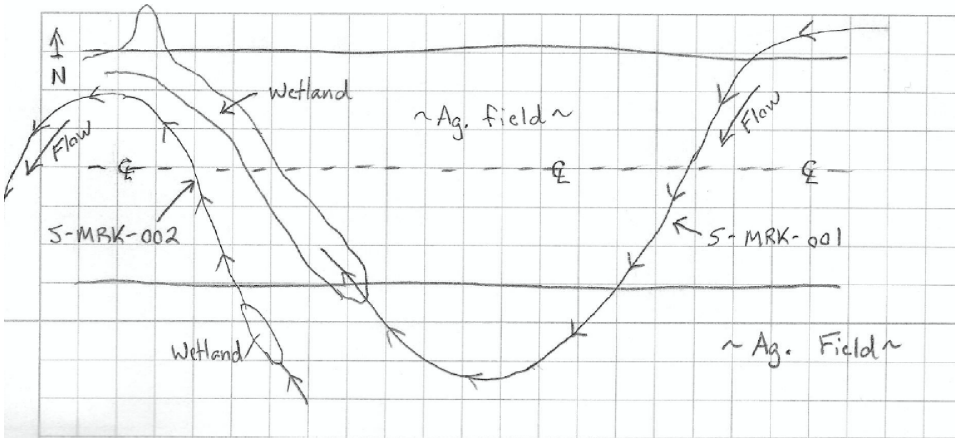
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **Y** Voucher? (Y/N) **N**

Comments Regarding Biology: **No macroinvertebrates observed**

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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

FLOW →



Save as pdf Reset Form

Stream CK-03

Modified Class 2

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 55

SITE NAME/LOCATION: ATSI Crissinger-Kirby 138kV Transmission Line Loop and Crissinger Substation Exp.

HH-MRK-003 PER SITE NUMBER: | RIVER BASIN: 05060001 | DRAINAGE AREA (mi²): 0.67

LENGTH OF STREAM REACH (ft): 200 | LAT.: 40.55602 | LONG.: -83.17854 | RIVER CODE: | RIVER MILE: 0.40

DATE: 03/18/19 | SCORER: MRK/RCM | COMMENTS: Perennial

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

Channelized through agricultural field

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	30%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	20%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% **(A)** | Substrate Percentage Check: 100% **(B)**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

HHEI Metric Points

Substrate Max = 40

15

A + B

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

☑	> 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** (Inches): 18.00

Pool Depth Max = 30

20

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

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐	≤ 1.0 m (<=3' 3") [5 pts]
☑	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS | **AVERAGE BANKFULL WIDTH** (Feet): 8.00

Bankfull Width Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☑	☑	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Surrounding land use is fallow field

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

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

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Little Scioto River (Modified Warmwater Habitat)** Distance from Evaluated Stream **0.40**

☐ 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: **Marion West** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Marion** Township / City: **Pleasant Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **03/16/19** Quantity: **0.10**

Photograph Information: **3 photos, upstream, downsteam, substrate**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **90%**

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: _____

Overall Stability of BOTH Stream Banks (check one): Stable ☐ **Moderately Stable** ☑ **Unstable** ☐

BIOTIC EVALUATION

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **Y** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

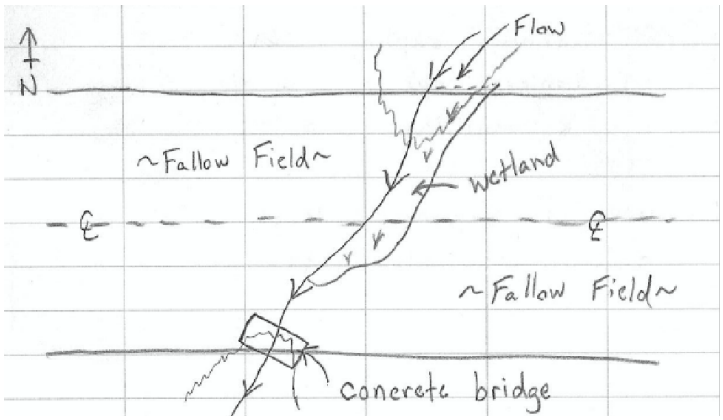
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **Y** Voucher? (Y/N) **N**

Comments Regarding Biology: **No macroinvertebrates observed**

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

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

FLOW ➔



Save as pdf Reset Form

APPENDIX D

REPRESENTATIVE STREAMS AND WETLANDS PHOTOGRAPHS

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 1

Date/Location:

March 18, 2019

Description:

Wetland CK-01

PEM

Category 1

Facing North

Facing East

Facing West

Facing South

Soil Pit

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 2

Date/Location:

March 18, 2019

Description:

Wetland CK-02

PEM

Category 1

Facing North

Facing East

Facing West

Facing South

Soil Pit

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 3

Date/Location:

March 18, 2019

Description:

Wetland CK-03a

PFO

Category 2

Facing North

Facing East

Facing West

Facing South

Soil Pit

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 4

Date/Location:

March 18, 2019

Description:

Wetland CK-03b

PSS

Category 2

Facing North

Facing East

Facing West

Facing South

Soil Pit

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 5

Date/Location:

March 18, 2019

Description:

Wetland CK-04

PEM

Modified Category 2

Facing North

Facing East

Facing West

Facing South

Soil Pit

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 6

Date/Location:

March 18, 2019

Description:

Wetland CK-05

PEM

Category 1

Facing North

Facing East

Facing West

Facing South

Soil Pit

PHOTOGRAPHIC RECORD
WETLANDS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 7

Date/Location:

March 18, 2019

Description:

Wetland CK-06

PSS

Category 1

Facing North

Facing East

Facing West

Facing South

Soil Pit

PHOTOGRAPHIC RECORD
STREAMS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 8

Date:

March 18, 2019

Description:

Stream CK-01

Intermittent

Modified Class 2

Facing Upstream

Facing Downstream

Substrate

PHOTOGRAPHIC RECORD
STREAMS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 9

Date:

March 18, 2019

Description:

Stream CK-02

Intermittent

Modified Class 2

Facing Upstream

Facing Downstream

Substrate

AECOM

PHOTOGRAPHIC RECORD
STREAMS

Client Name:	Site Location:	Project No.
American Transmission Systems, Inc.	Crissinger-Kirby138 kV Transmission Line Loop & Crissinger Substation Expansion Project	60598782

Photo No. 10

Date:

March 18, 2019

Description:

Stream CK-03

Perennial

Modified Class 2

Facing Upstream

Facing Downstream

Substrate

Kirby-Roberts 138 kV Transmission Line Loop to Crissinger Substation Project
Case Number 19-0803-EL-BLN

Exhibit 17
Access Map

MARION TOWNSHIP

Crissinger Rd

MARION COUNTY

Stream CK-01
UNT to Little Scioto River
HHEI: 51
5 FT

Laydown 1

CK-01

Crissinger Substation

Crissinger

44865.00
OHIO EDISON CO

11749

11750

11751

11752

11753

11754

11755

CK-02

3009

3008

Wetland CK-01
PEM - Category 1

44866.00
OHIO EDISON CO

PLEASANT TOWNSHIP

Crissinger Rd

Matting is to be used in all wetlands, floodplains, floodways, and when crossing streams.

44864.00
CAR-MAR FARM LLC

Ohio EPA 401
Eligible

Legend

- Survey Corridor
- Existing Substation
- Proposed Structure
- Proposed Crissinger-Kirby 138kV
- Crissingers Roberts No. 2 – 138 kV
- Existing Kirby-Roberts 138kV
- Existing Span To Be Removed
- Existing Structures
- Assumed 60ft Right-of-Way
- Existing ROW for Existing Span to be Removed
- Road Crossing
- Access Road
- Laydown Area
- Turnaround Area
- Erosion and Sediment Controls

Delineated Stream Type

- Intermittent
- Perennial

Delineated Wetland Habitat Type

- PEM
- PFO
- PSS
- Railroad
- City or Town
- Township Boundary
- Floodplain
- County Boundary
- Impacted Parcel
- Approximate Location of Conservation Easement

0 100 200 400 Feet

N

ATSI

American Transmission Systems, Inc.
Crissinger-Kirby 138kV
Transmission Line Loop and
Crissinger Substation Project
Erosion and Sediment Controls
Figure 2-1 of 3

URS Path: G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60598782_FE_CRSKBY\920-GIS or Graphics\Crissinger\Maps\CrissingerSubExpansion_KirbyLoop_AccessMaps.mxd

Source: BMCD, ESRI, FEMA, NWI, NHD, Bing Map Hybrid

Issued: April 8, 2019

Ohio EPA 401
Eligible

MARION
TOWNSHIP

MARION COUNTY

Wetland CK-04
PEM - Mod.
Category 2

Wetland CK-03a
PFO - Category 2

Wetland CK-02
PEM - Category 1

44865.00
OHIO EDISON CO

11739
11740
11741
11742
11743
11744
11745
11746
11747
11748
11749
11750

3012
3011
3010

Wetland CK-03b
PSS - Category 2

Stream CK-02
UNT to Little Scioto River
HHEI: 55
4 FT

44863.00
PHEASANTS FOREVER INC

PLEASANT
TOWNSHIP

44864.00
CAR-MAR FARM LLC

Matting is to be used in all wetlands, floodplains, floodways, and when crossing streams.

Legend

- Survey Corridor
- Existing Substation
- Proposed Structure
- Proposed Crissinger-Kirby 138kV
- Crissingers Roberts No. 2 – 138 kV
- Existing Kirby-Roberts 138kV
- Existing Span To Be Removed
- Existing Structures
- Assumed 60ft Right-of-Way
- Existing ROW for Existing Span to Be Removed
- Road Crossing
- Access Road
- Laydown Area
- Turnaround Area
- Erosion and Sediment Controls

Delineated Stream Type

- Intermittent
- Perennial

Delineated Wetland Habitat Type

- PEM
- PFO
- PSS
- Railroad
- City or Town
- Township Boundary
- Floodplain
- County Boundary
- Impacted Parcel
- Approximate Location of Conservation Easement

0 100 200 400 Feet

N

ATSI

American Transmission Systems, Inc.
Crissinger-Kirby 138kV
Transmission Line Loop and
Crissinger Substation Project
Erosion and Sediment Controls
Figure 2-2 of 3

Source: BMCD, ESRI, FEMA, NWI, NHD, Bing Map Hybrid

Issued: April 8, 2019

URS Path: G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60598782_FE_CRSKBY\920-GIS or Graphics\Crissinger SubExpansion_KirbyLoop_AccessMaps.mxd

MARION TOWNSHIP

MARION COUNTY

GREEN CAMP TOWNSHIP

PLEASANT TOWNSHIP

CK-03

11731

11732

11733

11734

11735

11736

11737

11738

3013

3014

5033

Turnaround 1

Turnaround 2

Turnaround 3

Stream CK-03
UNT to Little Scioto River
HHEI: 55
8 FT

Wetland CK-05
PEM - Category 1

Wetland CK-06
PSS - Category 1

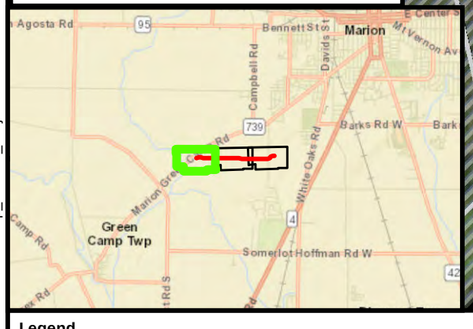
Little Scioto River

44860.00
PHEASANTS FOREVER INC

44861.00
OHIO DEPT OF NATURAL RESOURCES

44863.00
PHEASANTS FOREVER INC

Matting is to be used in all wetlands, floodplains, floodways, and when crossing streams.



Legend

- Survey Corridor
- Existing Substation
- Proposed Structure
- Proposed Crissinger-Kirby 138kV
- Crissingers Roberts No. 2 – 138 kV
- Existing Kirby-Roberts 138kV
- Existing Span To Be Removed
- Existing Structures
- Assumed 60ft Right-of-Way
- Existing ROW for Existing Span to Be Removed
- Road Crossing
- Access Road
- Laydown Area
- Turnaround Area
- Erosion and Sediment Controls

Delineated Stream Type

- Intermittent
- Perennial

Delineated Wetland Habitat Type

- PEM
- PFO
- PSS
- Railroad
- City or Town
- Township Boundary
- Floodplain
- County Boundary
- Impacted Parcel
- Approximate Location of Conservation Easement

0 100 200 400 Feet

N

ATSI

American Transmission Systems, Inc.
Crissinger-Kirby 138kV
Transmission Line Loop and
Crissinger Substation Project
Erosion and Sediment Controls
Figure 2-3 of 3

Source: BMCD, ESRI, FEMA, NWI, NHD, Bing Map Hybrid

Issued: April 8, 2019

URS Path: G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60598782_FE_CRSKBY920-GIS or Graphics\CrissingerSubExpansion_KirbyLoop_AccessMaps.mxd