Appendix D WETLAND AND WATERBODY DELINEATION REPORTS

D.1 PREFERRED ROUTE WETLAND AND WATERBODY DELINEATION REPORT

Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route

Wetland and Waterbody Delineation Report

August 26, 2020

Prepared for:

Columbia Gas of Ohio (NiSource)
1021 North Main Street
Mansfield, Ohio 44903

Prepared by:

Stantec Consulting Services Inc.
1500 Lake Shore Drive, Suite 100
Columbus, Ohio 43204

Sign-off Sheet

This document entitled Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Columbia Gas of Ohio/NiSource (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by 

(signature)

Charlie Allen

Reviewed by 

(signature)

Michelle Kearns

Approved by _____

(signature)

Matt Teitt

Table of Contents

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 PURPOSE

Columbia Gas of Ohio (COH) plans to construct a new 24-inch high pressure transmission class natural gas steel pipeline with associated 16-inch distribution class steel pipeline for a total of 16.59 miles (The Project). In addition, a launcher site and one district regulator station will be included as part of the Project. An alternate route and preferred route were surveyed to determine the best route option for the Project. This delineation report includes the features delineated in reference to the Preferred Route. The length of the survey corridor is 16.59 miles with a 200-foot survey corridor. The Project is located north of the City of Powell and runs west/southwest towards New California and travels through Liberty and Concord Townships in Delaware County, and Millcreek and Jerome Townships in Union County, Ohio (Appendix A, Figure 1).

Stantec Consulting Services Inc. (Stantec) was retained by COH to conduct a delineation of potential waters of the United States (WOUS), including wetlands, waterbodies, and potentially isolated wetlands within the Project area. The purpose of this delineation was to identify potential jurisdictional features present within the Project area.

Stantec completed the delineation of wetlands and waterbodies on January 30 and 31, February 20 and 25, March 3, 17, and 30 May 14, June 17, and July 9, 21, and 30, 2020. The information contained in this report reflects the current site conditions that were observed during the field delineation. Datasheets and photographs of features delineated within the Project area are included in Appendices B and C, respectively.

1.2 LOCATION OF PROJECT

The Project is located in Liberty and Concord Townships, Delaware County and Millcreek and Jerome Townships, Union County, Ohio (Appendix A, Figure 1). The Project area is depicted on the Powell and Shawnee Hills, Ohio U.S. Geological Survey (USGS) 7.5-minute series topographic maps and the approximate end points of the Project in latitude and longitude coordinates are 40.216431˚N, -83.091807˚W and 40.151451˚N, -83.182119˚W, respectively. The Project area is located in the Deep Run – Olentangy River watershed (HUC 12: 050600011101) that drains into the Olentangy River, the O'Shaughnessy Dam – Scioto River watershed (HUC12: 050600011202) that drains into the Scioto River, the Lower Mill Creek watershed (HUC12: 5060010604) that drains into the Scioto River, the Eversole Run watershed (HUC12: 050600011201) that drains into the Scioto River, the Indian Run watershed (HUC12: 050600011203) that drains into the Scioto River, and the Sugar Run watershed (HUC 12: 050600011904) that drains into Big Darby Creek.

2.0 METHODS

2.1 WETLAND DELINEATION

Prior to completing the survey, a desktop review of the Project area was conducted using the Powell and Shawnee Hills, Ohio USGS 7.5 Minute Series topographic maps (Appendix A, Figure 1), U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Delaware and Union County, Ohio (USDA, 1975; Appendix A, Figure 2), the National Wetlands Inventory map (USFWS 2019) (Appendix A, Figure 3), and aerial imagery

mapping were reviewed to assess the likelihood of occurrence and probable location of wetlands and waterbodies within the Project area.

Following this desktop review, Stantec conducted field surveys within the Project area on January 30 and 31, February 20 and 25, March 3, 17, and 30, May 14, June 17, July 9, 21, and 30, 2020. Wetland boundaries were assessed using the "Routine On-site Determination Method" as described in the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (USACE 2010). As of August 17, 1991, the USACE was directed to utilize the USACE Wetland Delineation Manual (USACE Environmental Laboratory 1987) to identify and delineate wetlands potentially subject to regulation under Section 404 of the Clean Water Act (CWA). Wetlands were classified according to "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1979). In this classification system, wetland habitats are divided into five major systems including: (1) Marine, (2) Estuarine, (3) Lacustrine, (4) Palustrine, and (5) Riverine. Each of these systems is further divided into subsystems, classes, and subclasses. Vegetative communities were inventoried to assess the dominant plant species in each of four vegetative layers: trees, saplings/shrubs, herbs, and woody vines. The wetland indicator status for each of the dominant species was obtained using the 2016 National Wetland Plant List (Lichvar et al. 2016). The wetland soil indicators were obtained using the Munsell soil-color chart (Munsell Color 2009) and the hydric soil field indicators (USDA, NRCS 2010). The uppermost wetland boundary and sampling points were identified and surveyed using a handheld Global Positioning System (GPS) unit and mapped with Geographical Information System (GIS) software. Stantec collected data and completed relevant assessment forms, which included: USACE Wetland Determination Forms (WDF), and Ohio Rapid Assessment Method v 5.0 forms (ORAM; Mack 2001). Datasheets are provided in Appendix B.

2.2 STREAM DELINEATION

Streams that demonstrated a continuously defined channel (bed and bank), ordinary high water mark (OHWM), and the disturbance of terrestrial vegetation were delineated within the Project area, per the protocols outlined in the USACE's Guidance on Ordinary High Water Mark Identification (Regulatory Guidance Letter, No. 05-05; USACE 2005). Delineated streams were classified as ephemeral, intermittent, or perennial per definition in the Federal Register/Vol. 67, No. 10 (2002). Functional assessment of streams within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) Headwater Habitat Evaluation Index (HHEI; OEPA 2012) and/or Qualitative Habitat Evaluation Index (QHEI; OEPA 2006). Datasheets are provided in Appendix B. The centerline of each waterway, or both banks for streams 15 feet or wider, were identified and surveyed using a sub-meter accurate handheld GPS unit and mapped with GIS software.

2.3 OPEN WATER DELINEATION

Open water boundaries were assessed using the definition described in the "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1979) which includes wetland and deepwater habitats with most of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30 percent areal coverage; and (3) total area exceeds 20 acres (8 hectares [ha]). Similar wetland and deepwater habitats totaling less than 20 acres (8 ha) are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes up most or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet (2 meters) at low water (estimated).

3.0 OVERVIEW OF PROJECT AREA

3.1 GEOLOGY AND TOPOGRAPHY

The Project is located in Union and Delaware Counties, Ohio and lies within the Till Plains section of the Central Lowlands physiographic province. The Project lies within the Central Ohio Clayey Till Plain region, which is characterized by: (1) a surface of clayey till; (2) well-defined moraines with intervening flat-lying ground moraine and intermorainal lake basins; (3) no boulder belts; (4) silt-, clay-, and till-filled lake basins; and (5) few large streams and limited sand and gravel outwashes. The geology of the region consists of clayey, high-lime Wisconsinan-age till from a northeastern source and lacustrine materials over Lower Paleozoic-age carbonate rocks. The eastern side of the region is more shales. Elevation ranges from 700 – 1,150 feet with moderate relief (ODGS 1998).

3.2 CLIMATE

The average winter temperature in Delaware County is 27ºF, and the average daily minimum temperature is 18ºF. The average summer temperature is 70ºF, and the average daily maximum temperature is 82ºF. Precipitation in Delaware County averages 37.23 inches per year but varies widely from year to year. Generally, precipitation is adequate and well distributed, but most frequently occurs from April through September. The average winter temperature in Union County is 29°F, and the average winter daily minimum temperature is 20°F. The average summer temperature is 71°F and the average daily maximum temperature is 83°F. Precipitation in Union County averages 36.58 inches per year but varies widely from year to year. Generally, precipitation is adequate and well distributed, but most frequently occurs from March to August (USDA 1969, USDA 1975).

3.3 SOILS

The Soil Survey of Delaware and Union Counties, Ohio (USDA 1969, USDA 1975) and the Natural Resources Conservation Service (NRCS) Web Soil Survey were consulted to assess soil types within the Project area (USDA, NRCS 2010). A copy of the soil map is included in Appendix A, Figure 2. Soils within the Project area with respective acreages and percentages are included in Table 1. Four soils listed within the Project area were considered to be hydric as shown in Table 1.

Table 1. Soil Types Known to Occur within the Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) Preferred Route Project Area, Delaware and Union Counties, Ohio

Map Unit Symbol	Map Unit Name	Hydric?	Acres in the Project Area	Percent within Project Area
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	No*	36.19	6.29%
Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	No*	59.09	10.26%
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	No*	259.97	45.16%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	No*	13.39	2.33%

Map Unit Symbol	Map Unit Name	Hydric?	Acres in the Project Area	Percent within Project Area
Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	No	4.56	0.79%
Gwe1B1	Glynwood silt loam, end moraine, 2 to 6 percent slopes	No*	3.19	0.55%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	No*	39.21	6.81%
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	No*	0.55	0.10%
LoA	Lobdell silt loam, channery substratum, 0 to 2 percent slopes, occasionally flooded	No*	9.53	1.66%
MoB	Milton silt loam, 2 to 6 percent slopes	No	9.81	1.70%
MoC2	Milton silt loam, 6 to 12 percent slopes, eroded	No	9.79	1.70%
MpD2	Milton-Lybrand complex, 12 to 18 percent slopes, eroded	No	4.60	0.80%
Pk	Pewamo silty clay loam, 0 to 1 percent slopes	Yes	73.49	12.77%
PwA	Pewamo silty clay loam, 0 to 1 percent slopes	Yes	38.46	6.68%
ScB	Scioto silt loam, 2 to 6 percent slopes	No	4.05	0.70%
SkA	Sloan silt loam, 0 to 2 percent slopes, occasionally flooded	Yes	2.70	0.47%
W	Water	No	2.12	0.37%
We	Wetzel silty clay loam	Yes	4.94	0.86%
	Total Acreage in Project Area		**575.66**	**100%**

*Contains Hydric inclusions

4.0 RESULTS

4.1 EXISTING CONDITIONS

Upland habitat within the Project area consists of maintained lawn, maintained right-of-way, developed/urban, old field habitat, early successional habitat, fencerow, cropland, and pasture. The maintained lawn, maintained right-of-way, new field, and pasture habitats consist of Kentucky bluegrass (*Poa pratensis*), common dandelion (*Taraxacum officinale*), great plantain (*Plantago major*), English plantain (*Plantago lanceolata*), and Canada thistle (*Cirsium arvense*). Old field and early successional habitat was dominated by, Canada goldenrod (*Solidago canadensis*), Queen Anne's lace (*Daucus carota*), rose (*Rose multiflora*), Fuller's teasel (*Dipsacus fullonum*), blackberry (*Rubus allegheniensis*), nodding foxtail (*Setaria faberi*), and green ash (*Fraxinus pennsylvanica*) saplings. The fence row habitat was dominated by shagbark hickory (*Carya ovata*), common hackberry (*Celtis occidentalis*), and white oak (*Quercus alba*). The overstory of the second growth deciduous forest habitat was dominated by common hackberry, sugar maple (*Acer saccharum*), silver maple (*Acer saccharinum*), American elm (*Ulmus Americana*), northern red oak (*Quercus rubra*), and pin oak (*Quercus palustris*). The shrub layer of the second growth deciduous forest consisted of honeysuckle (*Loniceria maackii*), raspberry (*Rubus idaeus*), blackberry, poison ivy (*Toxidendron radicans*), American

elm, silver maple, northern red oak, and pin oak. The agriculture habitat was dominated by corn (*Zea mays*), soybean (*Glycene max*), winter wheat (*Triticum aestivum*), Kentucky bluegrass, and barnyard grass (*Echinochloa crus-galli*).

4.2 WETLAND HABITAT

Twenty-one wetlands were identified within the Project area, totaling approximately 5.32 acres (Appendix A, Figure 4). Appendix B contains the WDF and ORAM forms for the wetlands identified within the Project area. Representative photographs of the wetlands are provided in Appendix C. The wetlands are described below and summarized in Table 2.

Wetland 1

Wetland 1 is a palustrine emergent (PEM) wetland approximately 0.08 acre in size within the Project area. The functional assessment (ORAM) of Wetland 1 yielded a score of 26 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 1 is potentially jurisdictional due to its potential hydrological connection to the Olentangy River. A WDF (SP01) was completed, and the first soil horizon was 8 inches of silt loam with a chroma matrix of 10YR 5/2 and redox concentrations of 5YR 5/6 in the pore linings and matrix, meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, high water table, saturation, and oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including rice cut grass (*Leersia oryzoides*; OBL), and wool grass (*Scirpus cyperinus*; OBL).

Wetland 2

Wetland 2 is a palustrine forested (PFO) wetland approximately 0.60 acre in size within the Project area. The functional assessment (ORAM) of Wetland 2 yielded a score of 58.5 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair-moderate" quality. Wetland 2 is potentially jurisdictional due to its hydrological connection to the Scioto River. Due to the size and orientation of Wetland 2, two sample points were taken. A WDF (SP05) was collected at the first sample point. The first soil horizon was 18 inches of clay loam with a low chroma matrix 10YR 3/2 and redox concentrations in the matrix (5YR 4/6), meeting the Redox Dark Surface (F6) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, and saturation. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including American elm (FACW) in the tree stratum and shallow sedge (*Carex lurida*; OBL) in the herbaceous stratum.

The second sample point, WDF SP06, the first soil horizon was 5 inches of silty clay loam with a chroma matrix of 10YR 3/3. The following 4 inches consisted of silty clay loam with a chroma matrix 10YR 3/3 with redox concentrations in the matrix (5YR 4/6). The next 4 inches consisted silty clay loam with of a chroma matrix 10YR 3/2 with redox concentrations in the matrix (10YR 5/6; 10YR 6/6), meeting the Redox Dark Surface (F6) hydric soil indicator. Primary hydrological indicators included a high water table, water marks, inundation visible on aerial imagery, sparsely vegetated concave surfaces and water stained leaves. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including eastern cottonwood (*Populus deltoides*; FAC), Ohio buckeye (*Aesculus glabra*; FAC), and green ash (FACW).

Wetland 3

Wetland 3 is a PEM wetland approximately 0.30 acre in size within the Project area. The functional assessment (ORAM) of Wetland 3 yielded a score of 19 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 3 is potentially jurisdictional due to its potential hydrological connection to the Scioto River. A WDF (SP08) was completed, and the first soil horizon was 9 inches of silty clay loam with a chroma matrix 10YR 4/2 and redox concentrations in the matrix (10YR 5/8), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, and saturation. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including barnyard grass (*Echinochloa crus-galli*; FACW) and calico aster (*Symphyotrichum lateriflorum*; FACW).

Wetland 3a

Wetland 3a is a PEM wetland approximately 0.06 acre in size within the Project area. The functional assessment (ORAM) of Wetland 3a yielded a score of 31.5 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair" quality. Wetland 3c is potentially jurisdictional due to its potential hydrological connection to the Scioto River. A WDF (SP9b) was completed, and the first soil horizon was 4 inches of clay loam with a chroma matrix 10YR 4/1 and redox concentrations in the pore linings (10YR 5/6). The next 8 inches consisted of clay with a chroma matrix 10YR 4/1 and redox concentrations in the matrix (10YR 5/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included saturation and oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including narrow leaf cattail (*Typha angustifolia*, OBL), and reed canary grass (*Phalaris arundinacea,* FACW).

Wetland 3b

Wetland 3b is a PEM wetland approximately 0.02 acre in size within the Project area. The functional assessment (ORAM) of Wetland 3b yielded a score of 8 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 3b is potentially jurisdictional due to its potential hydrological connection to Stream 7a. A WDF (SP9c) was completed, and the first soil horizon was 10 inches of clay with a chroma matrix 10YR 3/2 and redox concentrations in the pore linings (10YR 5/6), meeting the Redox Dark Surface (F6) hydric soil indicator. Primary hydrological indicators included algal mat or crust and oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including narrow leaf cattail (OBL).

Wetland 3c

Wetland 3c is a PEM wetland approximately 0.05 acre in size within the Project area. The functional assessment (ORAM) of Wetland 3c yielded a score of 23 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 3c is potentially jurisdictional due to its hydrological connection to stream 7a. A WDF (SP9e) was completed, and the first soil horizon was 2 inches of organic with a chroma matrix 2.5Y 3/1. The next 18 inches consisted of clay with a chroma matrix of 10YR 5/1 and redox concentrations in the matrix (10YR 5/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary

hydrological indicators included surface water, a high water table, and saturation. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including reed canary grass (FACW).

Wetland 3d

Wetland 3d is a PEM wetland approximately 0.02 acre in size within the Project area. The functional assessment (ORAM) of Wetland 3d yielded a score of 20 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 3d is potentially jurisdictional due to its hydrological connection to Eversole Run. A WDF (SP9g) was completed, and the first soil horizon was 4 inches of silty clay with a chroma matrix 10YR 4/3 and redox concentrations in the matrix (10/YR 4/4 and 10YR 4/6). The next 11 inches consisted of silty clay with a chroma matrix of 10YR 4/2 and redox concentrations in the matrix (10YR 5/8), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, and a high water table. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including broad leaf cattail (*Typha latifolia*; OBL).

Wetland 4

Wetland 4 is a PFO and PEM wetland approximately 1.50 acre in size within the Project area. The functional assessment (ORAM) of Wetland 4 yielded a score of 15 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "Poor" quality. Wetland 4 is potentially jurisdictional due to its hydrological connection to Stream 8. Due to the size and orientation of wetland 4, four sample points were taken. A WDF (SP11) was collected at the first sample point. The first soil horizon was 3 inches of silty clay loam with a chroma matrix 10YR 4/2. The following 12 inches were silty clay loam with a chroma matrix 10YR 4/2 and redox concentrations in pore linings (5YR 4/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water and a high water table. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including reed canary grass (FACW).

The second sample point, WDF (SP13), the first soil horizon was 4 inches of silty clay loam with a chroma matrix 10YR 4/2. The following 11 inches were silty clay loam with a chroma matrix 10YR 4/2 and redox concentrations in the matrix (5YR 5/4), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included a high water table. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including reed canary grass (FACW).

The third sample point, WDF (SP9i), is the PFO representative sample point of Wetland 4. The first soil horizon was 3 inches of silty clay loam with a chroma matrix 10YR 3/2. The following 9 inches were silty clay loam with a chroma matrix 10YR 3/2 and redox concentrations in the pore linings (5YR 4/6) and in the matrix (5YR 4/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including American elm (*Ulmus americana;* FACW) and box elder (*Acer negundo;* FAC) in the tree stratum, Morrow's honeysuckle (*Lonicera morrowii*; FACU) in the shrub stratum and reed canary grass (FACW) in the herbaceous stratum.

The fourth sample point, WDF (SP9k), the first soil horizon was 3 inches of silty clay loam with a chroma matrix 10YR 4/2 and redox concentrations in the pour linings (7.5YR 4/6). The next 5 inches were silty clay loam with a chroma matrix 10YR 4/2 and redox concentrations in the matrix (7.5YR 4/6) meeting the Depleted Matrix

(F3) hydric soil indicator. Primary hydrological indicators included a high water table and oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including box elder (FAC) in the tree stratum and reed canary grass (FACW) and spotted touch-me-not (*Impatiens capensis*; FACW) in the herbaceous stratum.

Wetland 4a

Wetland 4a is a PEM wetland approximately 0.03 acre in size within the Project area. The functional assessment (ORAM) of Wetland 4a yielded a score of 29 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 4a is potentially jurisdictional due to its hydrological connection to Stream 8. A WDF (SP9m) was completed, the first soil horizon was 8 inches of silty clay loam with a chroma matrix of 10YR 4/2 and redox concentrations in the matrix (7.5YR 4/6) meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included sparsely vegetated concave surface. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including narrow leaf cattail (OBL) and blunt spikerush (*Eleocharis obtuse*; OBL).

Wetland 5

Wetland 5 is a PEM wetland approximately 0.10 acre in size within the Project area. The functional assessment (ORAM) of Wetland 5 yielded a score of 14.5 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 5 is potentially jurisdictional due to its proximity to Stream 8. A WDF (SP15) was completed, the first soil horizon was 4 inches of silty clay loam with a chroma matrix of 10YR 3/2. The following 11 inches was silty clay loam with a chroma matrix of 10YR 4/1 and redox concentrations in the pore linings (5YR 4/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included a high water table. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including reed canary grass (FACW).

Wetland 6

Wetland 6 is a PEM wetland approximately 0.06 acre in size within the Project area. The functional assessment (ORAM) of Wetland 6 yielded a score of 19 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 6 is potentially jurisdictional due to its hydrological connection to Stream 9. A WDF (SP17) was completed, the first soil horizon was 6 inches of silty clay loam with a chroma matrix of 10YR 3/2. The following 8 inches was silty clay loam with a chroma matrix of 10YR 4/1 and redox concentrations in the matrix (10YR 5/8; 5YR 4/6), and redox concentrations in the pore linings (5YR 4/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, saturation, oxidized rhizospheres on living roots, and FAC-neutral test. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including reed canary grass (FACW).

Wetland 7

Wetland 7 is a PFO wetland approximately 0.54 acre in size within the Project area. The functional assessment (ORAM) of Wetland 7 yielded a score of 57 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "moderate" quality. Wetland 7 is potentially jurisdictional due to its proximity to Stream 13. A WDF (SP20) was completed, the first soil horizon was 7 inches of clay loam with a chroma matrix of 10YR 4/2

and redox concentrations in the pore linings (7.5YR 5/8). The next 11 inches were clay loam with a chroma matrix 10YR 3/2 and redox concentrations in the matrix (7.5YR 5/8), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, saturation, water marks, and water-stained leaves. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including shellbark hickory (*Carya laciniosa*; FACW), American elm (FACW), and pin oak (FACW).

Wetland 8

Wetland 8 is a PEM wetland approximately 0.01 acre in size within the Project area. The functional assessment (ORAM) of Wetland 8 yielded a score of 28 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 8 is potentially jurisdictional due to its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP21) was completed, the first soil horizon was 20 inches of silty clay with a chroma matrix of 10YR 4/2 and redox concentrations in the matrix (10YR 3/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, and saturation. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including soft rush (*Juncus effuses*; OBL), and green bullrush (*Scirpus atrovirens*; OBL).

Wetland 8a

Wetland 8a is a PEM wetland approximately 0.15 acre in size within the Project area. The functional assessment (ORAM) of Wetland 8a yielded a score of 36 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair-moderate" quality. Wetland 8a is potentially jurisdictional due to its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP20a) was completed, the first soil horizon was 4 inches of silty clay with a chroma matrix of 10YR 4/2 and redox concentrations in the pore linings and matrix (7.5YR 4/4). The following 14 inches was silty clay with a chroma matrix of 10YR 4/2 and redox concentrations in the matrix (7.5YR 4/4), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including reed canary grass (FACW).

Wetland 8b

Wetland 8b is a PEM wetland approximately 0.21 acre in size within the Project area. The functional assessment (ORAM) of Wetland 8b yielded a score of 47 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "moderate" quality. Wetland 8b is potentially jurisdictional due to its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP20c) was completed, the first soil horizon was 8 inches of silty clay loam with a chroma matrix of 10YR 3/2 and redox concentrations in the pore linings and matrix (7.5YR 4/6). The following 10 inches was silty clay loam with a chroma matrix of 10YR 3/2 and redox concentrations in the matrix (7.5YR 4/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including soft rush (OBL) and awl-fruit sedge (*Carex stipata*; OBL).

Wetland 8c

Wetland 8c is a PEM wetland approximately 0.26 acre in size within the Project area. The functional assessment (ORAM) of Wetland 8c yielded a score of 47 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "moderate" quality. Wetland 8c is potentially jurisdictional due to its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP20e) was completed, the first soil horizon was 6 inches of silty clay with a chroma matrix of 10YR 4/2 and redox concentrations in the pore linings and matrix (7.5YR 4/6). The following 6 inches was silty clay with a chroma matrix of 10YR 4/2 and redox concentrations in the matrix (10YR 4/3 and 7.5YR 4/2), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including blunt spikerush (OBL).

Wetland 9

Wetland 9 is a PEM wetland approximately 0.04 acre in size within the Project area. The functional assessment (ORAM) of Wetland 9 yielded a score of 36 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair-moderate" quality. Wetland 9 is potentially jurisdictional due to its proximity with Wetland 10 and its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP23) was completed, the first soil horizon was 5 inches of silt loam with a chroma matrix of 10YR 4/2. The next 10 inches were silt loam with a chroma matrix of 10YR4/2 and redox concentrations in the matrix (7.5YR 4/4), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, and saturation. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including greater straw sedge (*Carex normalis*; FACW).

Wetland 10

Wetland 10 is a PEM wetland approximately 0.52 acre in size within the Project area. The functional assessment (ORAM) of Wetland 10 yielded a score of 39 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair-moderate" quality. Wetland 10 is potentially jurisdictional due to its proximity with Wetland 11 and its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP25) was completed, the first soil horizon was 16 inches of silty clay with a chroma matrix of 10YR 4/2 and redox concentrations in the matrix (7.5YR 4/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, saturation, and FAC-neutral test. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including soft rush (OBL), path rush (*Juncus tenuis*; FAC) and Kentucky bluegrass (FAC).

Wetland 11

Wetland 11 is a PEM wetland approximately 0.31 acre in size within the Project area. The functional assessment (ORAM) of Wetland 11 yielded a score of 40 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair-moderate" quality. Wetland 11 is potentially jurisdictional due to its proximity with Wetland 10 and its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP27) was completed, the first soil horizon was 20 inches of silty clay with a chroma matrix of 10YR 5/2 and redox concentrations in the matrix (10YR 5/6; 7.5YR 4/6), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, a high water table, and saturation. Vegetation identified

within the sample plot was dominated by hydrophytic vegetation including soft rush (OBL) and path rush (FAC).

Wetland 12

Wetland 12 is a PEM wetland approximately 0.06 acre in size within the Project area. The functional assessment (ORAM) of Wetland 12 yielded a score of 26 and identifies this wetland as a Category 1 wetland, indicating it is a wetland of "poor" quality. Wetland 12 is potentially jurisdictional due to its potential hydrological connection to Stream 10, Eversole Run. A WDF (SP29) was completed, the first soil horizon of 4 inches of silty clay loam with a chroma matrix 10YR 4/2 and redox concentrations of 7.5YR 5/8 in the matrix and pore linings. The next 4 inches were silty clay loam with a chroma matrix of 10YR 4/2 and redox concentrations in the matrix (7.5YR 5/8), meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, high water table, saturation, and oxidized rhizospheres on living roots. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including black willow (*Salix nigra*; OBL), narrow-leaf cattail (OBL) and reed canary grass (FACW).

Wetland 13

Wetland 13 is a PEM wetland approximately 0.40 acre in size within the Project area. The functional assessment (ORAM) of Wetland 13 yielded a score of 36 and identifies this wetland as a Category 2 wetland, indicating it is a wetland of "fair-moderate" quality. Wetland 13 is potentially jurisdictional due to its potential hydrological connection to North Fork Indian Run. The WDF (SP31) included a first soil horizon was 5 inches of silt loam with a chroma matrix of 10YR 4/3 and redox concentrations of 5YR 4/6 in the matrix and pore linings. The next 9 inches were silt loam with a chroma matrix of 10YR 4/2 and redox concentrations of 5YR 4/6 in the matrix and pore linings, meeting the Depleted Matrix (F3) hydric soil indicator. Primary hydrological indicators included surface water, high water table, saturation, oxidized rhizospheres on living roots, and FAC-neutral test. Vegetation identified within the sample plot was dominated by hydrophytic vegetation including broadleaf cattail (OBL).

Table 2. Potential Wetlands Identified in the Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) Preferred Route Project Area, Delaware and Union Counties, Ohio

Wetland Name	Latitude	Longitude	Classification	ORAM Score	ORAM Regulatory Category	Total Acres in Project Area
Wetland 1	40.232654	-83.113139	PEM	26	1	0.08
Wetland 2	40.242653	-83.148301	PFO	58.5	2	0.60
Wetland 3	40.226731	-83.165643	PEM	19	1	0.30
Wetland 3a	40.212522	-83.177766	PEM	31.5	2	0.06
Wetland 3b	40.204431	-83.188954	PEM	8	1	0.02
Wetland 3c	40.202862	-83.189982	PEM	23	1	0.05
Wetland 3d	40.213193	-83.174321	PEM	20	1	0.02
Wetland 4	40.203218	-83.181067	PEM/PFO	15	1	1.50

Wetland Name	Latitude	Longitude	Classification	ORAM Score	ORAM Regulatory Category	Total Acres in Project Area
Wetland 4a	40.201919	-83.172908	PEM	29	1	0.03
Wetland 5	40.202161	-83.18441	PEM	14.5	1	0.10
Wetland 6	40.196233	-83.196424	PEM	19	1	0.06
Wetland 7	40.164082	-83.213923	PFO	57	2	0.54
Wetland 8	40.15983	-83.201401	PEM	28	1	0.01
Wetland 8a	40.160389	-83.198806	PEM	36	2	0.15
Wetland 8b	40.160218	-83.193892	PEM	47	2	0.21
Wetland 8c	40.160314	-83.190962	PEM	47	2	0.26
Wetland 9	40.159192	-83.198138	PEM	36	2	0.04
Wetland 10	40.158715	-83.194937	PEM	39	2	0.52
Wetland 11	40.157867	-83.194321	PEM	40	2	0.31
Wetland 12	40.155283	-83.190034	PEM	26	1	0.06
Wetland 13	40.152528	-83.18615	PEM	36	2	0.40
					Total Delineated Wetland	**5.32**

4.3 STREAM HABITAT

Fourteen streams were identified within the Project area, totaling approximately 8,539 linear feet (Appendix A, Figure 4). Appendix B contains the QHEI and HHEI datasheets. Representative photographs of the streams are provided in Appendix C. The streams are described below and summarized in Table 3.

Stream 1

Stream 1 is an intermittent stream with approximately 275 linear feet within the Project area. The functional assessment (HHEI) of Stream 1 yielded a score of 40, indicating it is a Class II PHWH stream. The stream had a bankfull width of 5.5 feet and a bankfull depth of 0.8 feet and was flowing at the time of site visit. Substrates observed were primarily silt and clay. Stream 1 drains into the Olentangy River outside the Project area.

Stream 2

Stream 2 is a perennial stream with approximately 88 linear feet within the Project area. The functional assessment (HHEI) of Stream 2 yielded a score of 54, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 6 feet and a bankfull depth of 1.5 feet and was flowing at the time of site visit. Substrates observed were primarily sand and gravel. Stream 2 drains into the Scioto River within the Project area.

Stream 3

Stream 3, the Scioto River is a perennial stream with approximately 210 linear feet within the Project area. The functional assessment (QHEI) of Stream 3 yielded a score of 61, indicating it is a “good” quality stream. The stream had a bankfull width of 470 feet and a bankfull depth of 10 feet and was flowing at the time of site visit. The substrate observed was primarily sand and gravel. Stream 3 drains into the Ohio River outside Project area.

Stream 4

Stream 4 is an intermittent stream with approximately 126 linear feet within the Project area. The functional assessment (HHEI) of Stream 4 yielded a score of 51, indicating it as Modified Class II PHWH stream. The stream had a bankfull width of 6 feet and a bankfull depth of 1.5 feet and was flowing at the time of site visit. The substrate observed was primarily hardpan and gravel. Stream 4 drains into the Scioto River outside Project area.

Stream 5

Stream 5 is an intermittent stream with approximately 200 linear feet within the Project area. The functional assessment (HHEI) of Stream 5 yielded a score of 50, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 4.5 feet and a bankfull depth of 1 foot and was flowing at the time of site visit. The substrate observed was primarily hardpan and sand. Stream 5 drains into the Scioto River outside Project area.

Stream 6

Stream 6 is an ephemeral stream with approximately 146 linear feet within the Project area. The functional assessment (HHEI) of Stream 6 yielded a score of 23, indicating it is a Modified Class I PHWH stream. The stream had a bankfull width of 1.5 feet and a bankfull depth of 0.5 foot and had a moist channel with isolated pools at the time of site visit. The substrate observed was primarily hardpan and gravel. Stream 6 drains into Scioto River outside the Project area.

Stream 7

Stream 7 is an intermittent stream with approximately 778 linear feet within the Project area. The functional assessment (HHEI) of Stream 7 yielded a score of 57, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 3.5 feet and a bankfull depth of 1 foot and had subsurface flow with isolated pools at the time of site visit. The substrate observed was primarily hardpan and cobble. Stream 7 drains into the Scioto River outside the Project area.

Stream 7a

Stream 7a is an intermittent stream with approximately 232 linear feet within the Project area. The functional assessment (HHEI) of Stream 7a yielded a score of 28, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 3 feet and a bankfull depth of 0.5 foot and was flowing at the time of site visit.

The substrate observed was primarily sand and muck. Stream 7a drains into the Eversole Run outside the Project area.

Stream 8

Stream 8 is an intermittent stream with approximately 1,366 linear feet within the Project area. The functional assessment (HHEI) of Stream 8 yielded a score of 40, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 2.5 feet and a bankfull depth of 0.8 feet and had subsurface flow with isolated pools at the time of site visit. The substrate observed was primarily silt and hardpan. Stream 8 drains into the Eversole Run outside Project area.

Stream 9

Stream 9 is an intermittent stream with approximately 24 linear feet within the Project area. The functional assessment (HHEI) of Stream 9 yielded a score of 50, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 5 feet and a bankfull depth of 1.5 feet and was flowing at the time of site visit. The substrate observed was primarily silt and hardpan. Stream 9 drains into Eversole Run outside Project area.

Stream 10

Stream 10, Eversole Run, is an intermittent stream with approximately 901 linear feet within the Project area. The functional assessment (HHEI) of Stream 10 yielded a score of 57, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 4.5 feet and a bankfull depth of 1.5 feet and was flowing at the time of site visit. The substrate observed was primarily silt and sand. Stream 10 drains into the Scioto River outside Project area.

Stream 11

Stream 11 is an intermittent stream with approximately 2,615 linear feet within the Project area. The functional assessment (HHEI) of Stream 11 yielded a score of 64, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 7 feet and a bankfull depth of 3 foot and was flowing at the time of site visit. The substrate observed was primarily silt and gravel. Stream 11 flows into Sugar Run outside Project area.

Stream 12

Stream 12 is an intermittent stream with approximately 47 linear feet within the Project area. The functional assessment (HHEI) of Stream 12 yielded a score of 59, indicating it is a Modified Class II PHWH stream. The stream had a bankfull width of 5.5 feet and a bankfull depth of 2 feet and was flowing at the time of site visit. The substrate observed was primarily silt and gravel. Stream 12 flows into Stream 11 which drains into Sugar Run outside Project area.

Stream 13

Stream 13 is an intermittent stream with approximately 1,531 linear feet within the Project area. The functional assessment (HHEI) of Stream 13 yielded a score of 58, indicating it is a Modified Class II PHWH stream. The

stream had a bankfull width of 5.5 feet and a bankfull depth of 1 foot and was flowing at the time of site visit. The substrate observed was silt and sand. Stream 13 drains into Eversole Run outside Project area.

Table 3. Potential Streams Identified in the Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) Preferred Route Project Area, Delaware and Union Counties, Ohio

Stream Name	Latitude	Longitude	OHWM Width (Feet)	OHWM Depth (Feet)	Classification	Evaluation Method	Score	Total Linear feet in Project Area
Stream 1	40.219167	-83.093948	4.5	0.5	Intermittent	HHEI	40	275
Stream 2	40.244577	-83.145703	5.5	1.0	Perennial	HHEI	54	88
Stream 3 (Scioto River)	40.244562	-83.14632	420	10	Perennial	QHEI	61	210
Stream 4	40.241014	-83.150642	5.0	1.0	Intermittent	HHEI	51	126
Stream 5	40.239341	-83.152911	3.5	0.5	Intermittent	HHEI	50	200
Stream 6	40.236763	-83.152786	0.7	0.2	Ephemeral	HHEI	23	146
Stream 7	40.233024	-83.159714	2.0	0.7	Intermittent	HHEI	57	778
Stream 7a	40.20275	-83.18980	2	0.25	Intermittent	HHEI	28	232
Stream 8	40.202872	-83.182029	2.0	0.5	Intermittent	HHEI	40	1,366
Stream 9	40.195954	-83.196003	2.5	1.0	Intermittent	HHEI	50	24
Stream 10 (Eversole Run)	40.183121	-83.213459	2.5	1.0	Intermittent	HHEI	57	901
Stream 11	40.174637	-83.231765	5.5	1.5	Intermittent	HHEI	64	2,615
Stream 12	40.171631	-83.229378	4.5	1.0	Intermittent	HHEI	59	47
Stream 13	40.164454	-83.210603	3.0	1.0	Intermittent	HHEI	58	1,531
							Total Linear Feet in Project Area	**8,539**

4.4 OPEN WATERS

Three open water features, ponds, were identified within the Project area, totaling approximately 0.28 acre (Appendix A, Figure 4). Representative photographs of the open waters are provided in Appendix C. The open waters are summarized in table 4.

Table 4. Potential Open Water Features Identified in the Northern Columbus Loop Natural Gas Pipeline Project (Phase IV) Preferred Route Project Area, Delaware and Union Counties, Ohio

Open Water Name	Classification	Latitude	Longitude	Total Acreage in Project Area
Open Water 1	PUB	40.243522	-83.131637	0.09
Open Water 2	PUB	40.24323	-83.188375	0.19
Open Water 3	PUB	40.154678	-83.188375	0.001
			Total Acers in Project Area	**0.28**

5.0 CONCLUSION

Stantec conducted a delineation of potential WOUS within the Project area located in Liberty and Concord Townships, Delaware County and Millcreek and Jerome Townships, Union County, Ohio. The purpose and objective of the wetland and waterbody delineation was to identify the extent and spatial arrangement of potential jurisdictional wetlands and waterbodies within the Project area. Twenty-one potentially jurisdictional wetlands and fourteen potentially jurisdictional streams were identified within the Project area. A total of approximately 2.11 acres of delineated Category 1 PEM Wetlands, 0.09 acre of Category 1 PFO wetlands, 1.99 acres of Category 2 PEM wetlands, and 1.13 acre of Category 2 PFO wetlands were identified in the Project area for a total of 5.32 acres. A total of 298 linear feet of perennial stream, 8,095 linear feet of intermittent stream, and 146 linear feet of ephemeral stream for a total length of 8,539 linear feet of potentially jurisdictional stream were identified within the Project area. A total of 0.28 acre of open water features were identified within the Project area.

Stantec's opinion regarding the presence/absence of jurisdictional WOUS and isolated wetlands is preliminary. Only the USACE can provide an official determination of the presence and extent of jurisdictional WOUS. Wetlands that are considered WOUS are subject to regulation under Section 404 of the CWA and the jurisdictional regulatory authority lies with the USACE. Additionally, the OEPA has regulatory authority over isolated wetlands under Ohio Revised Code 61111.021. Stantec recommends that Columbia Gas of Ohio/NiSource contact the USACE for final jurisdictional review and concurrence with Stantec's opinion regarding the presence/absence of WOUS within the Project area prior to construction activities associated with this Project.

6.0 REFERENCES

Cowardin, L.M., V. Carter, F.C. Golet, E.T. La Roe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. Retrieved from: http://www.npwrc.usgs.gov/resources/1998/classwet/classwet.htm (Version 04DEC98).

Federal Register. 2002. Issuance of Nationwide Permits; Notice. Federal Register: The Daily Journal of the United States 67(10): 2024. Retrieved from: https://www.govinfo.gov/content/pkg/FR-2002-01-15/pdf/FR-2002-01-15.pdf

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. Retrieved from: http://rsgisias.crrel.usace.army.mil/NWPL

Mack, J.J. 2001. Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0. Ohio EPA Technical Bulletin Wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit. Columbus, Ohio. 72 pp.

Munsell Color. 2009. Munsell Soil Color Charts. Kollmorgen Instruments Corporation, Newburgh, New York.

Ohio Division of Geological Survey (ODGS). 1998. Physiographic regions of Ohio: Ohio Department of Natural Resources, Division of Geological Survey, page-size map with text. 2 pp.

Ohio Environmental Protection Agency (OEPA). 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI).

OEPA. 2012. Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3.0. Ohio EPA Division of Surface Water, Columbus, Ohio. 117 pp.

United States Army Corps of Engineers (USACE) Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USACE. 2005. Guidance on Ordinary High Water Mark Identification. (Regulatory Guidance Letter, No. 05-05). Retrieved from: http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/GuidanceLetters.aspx

United States Department of Agriculture (USDA). 1975. Soil Survey of Union County, Ohio. United States Department of Agriculture, Natural Resource Conservation Service, in cooperation with the Ohio Department of Natural Resources, Division of Soil and Water Conservation.

United States Department of Agriculture (USDA). 1969. Soil Survey of Delaware County, Ohio. United States Department of Agriculture, Natural Resource Conservation Service, in cooperation with the Ohio Department of Natural Resources, Division of Soil and Water Conservation.

USDA, Natural Resource Conservation Service (USDA, NRCS). 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

USDA. Web Soil Survey. Retrieved from: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed March 2020.

United States Geological Survey (USGS). *Ohio 7.5 Minute Series (Topographic) Maps.* 1:24,000. Reston, VA: United States Department of the Interior, USGS.

United States Fish and Wildlife Service (USFWS). 2019 National Wetlands Inventory, Web Mapper. Retrieved from: http://www.fws.gov/wetlands/Data/Mapper.html

APPENDICES

Appendix A FIGURES

A.1 FIGURE 1 – PROJECT LOCATION AND TOPOGRAPHY MAP

Figure No.

1

Title

Project Location and Topography

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

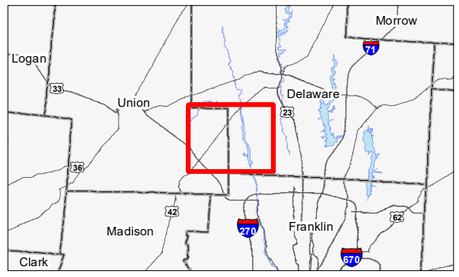
0 2,000 4,000 Feet

1:48,000 (At original document size of 11x17)

N

Legend

- Approximate Proposed Pipeline - Preferred Route
- Survey Corridor



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS
3. Background: USGS 7.5' Topographic Quadrangles

Stantec

A.2 FIGURE 2 – NRCS SOIL SURVEY DATA AND HYDRIC RATINGS MAP

Figure No.
2

Title
NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

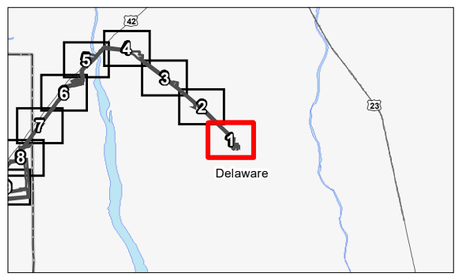
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

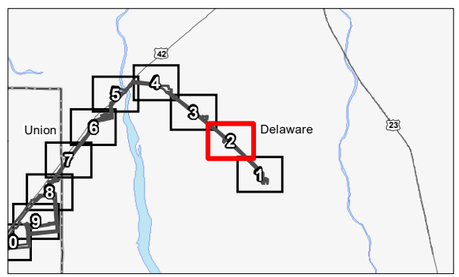
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

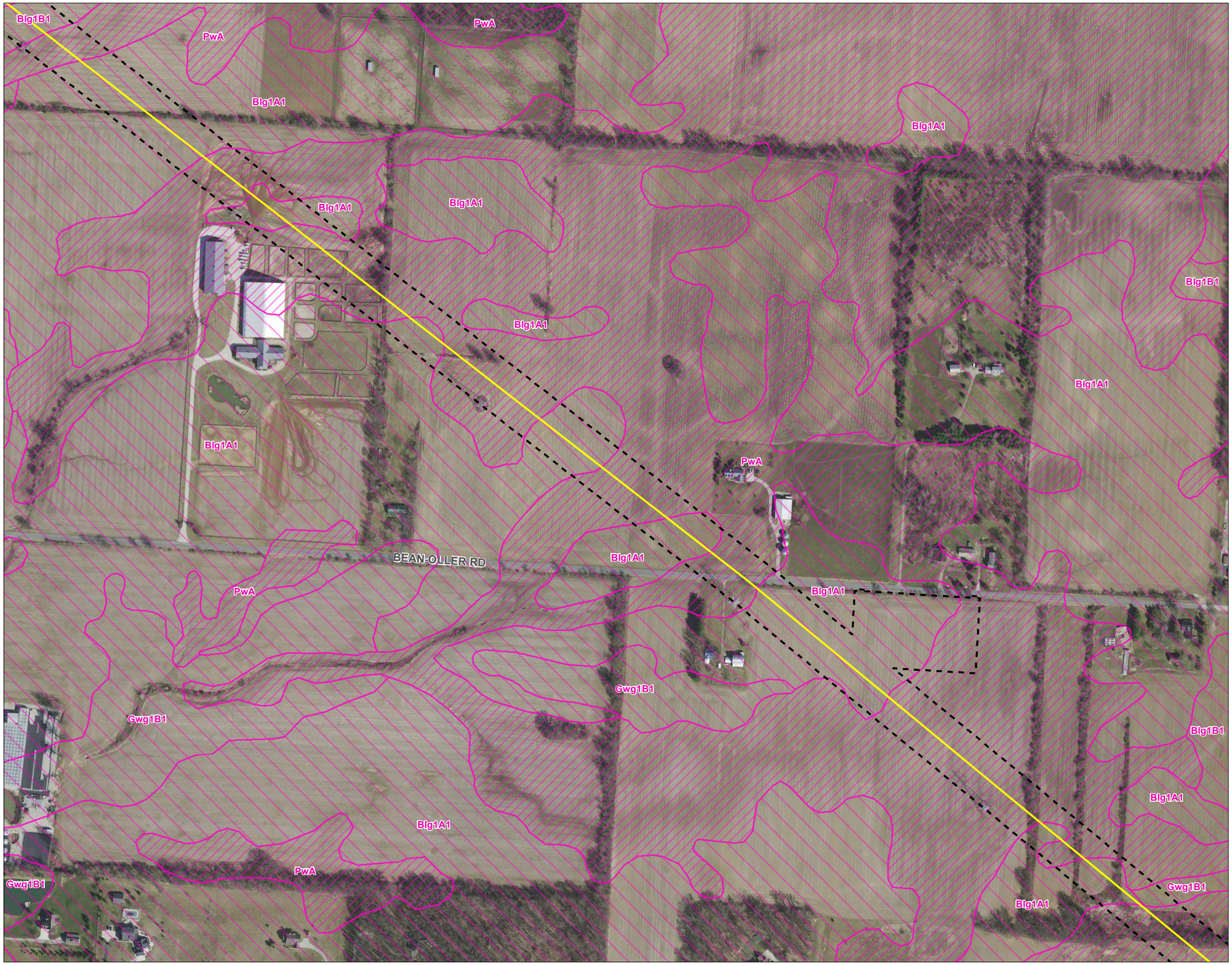


Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

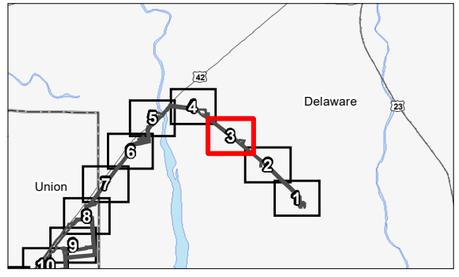
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
2

Title
NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

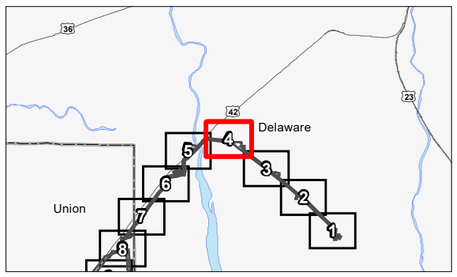
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

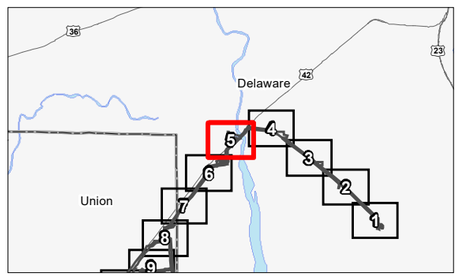
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

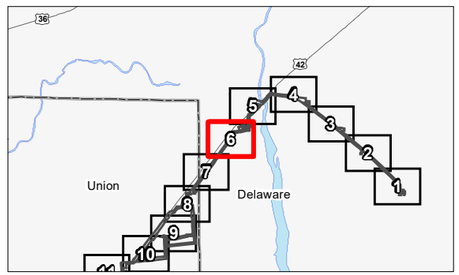
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

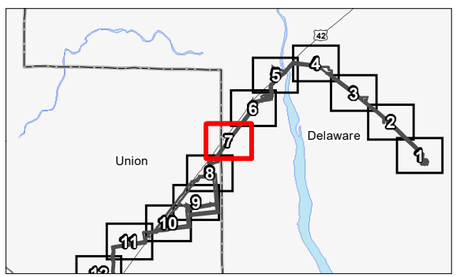
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

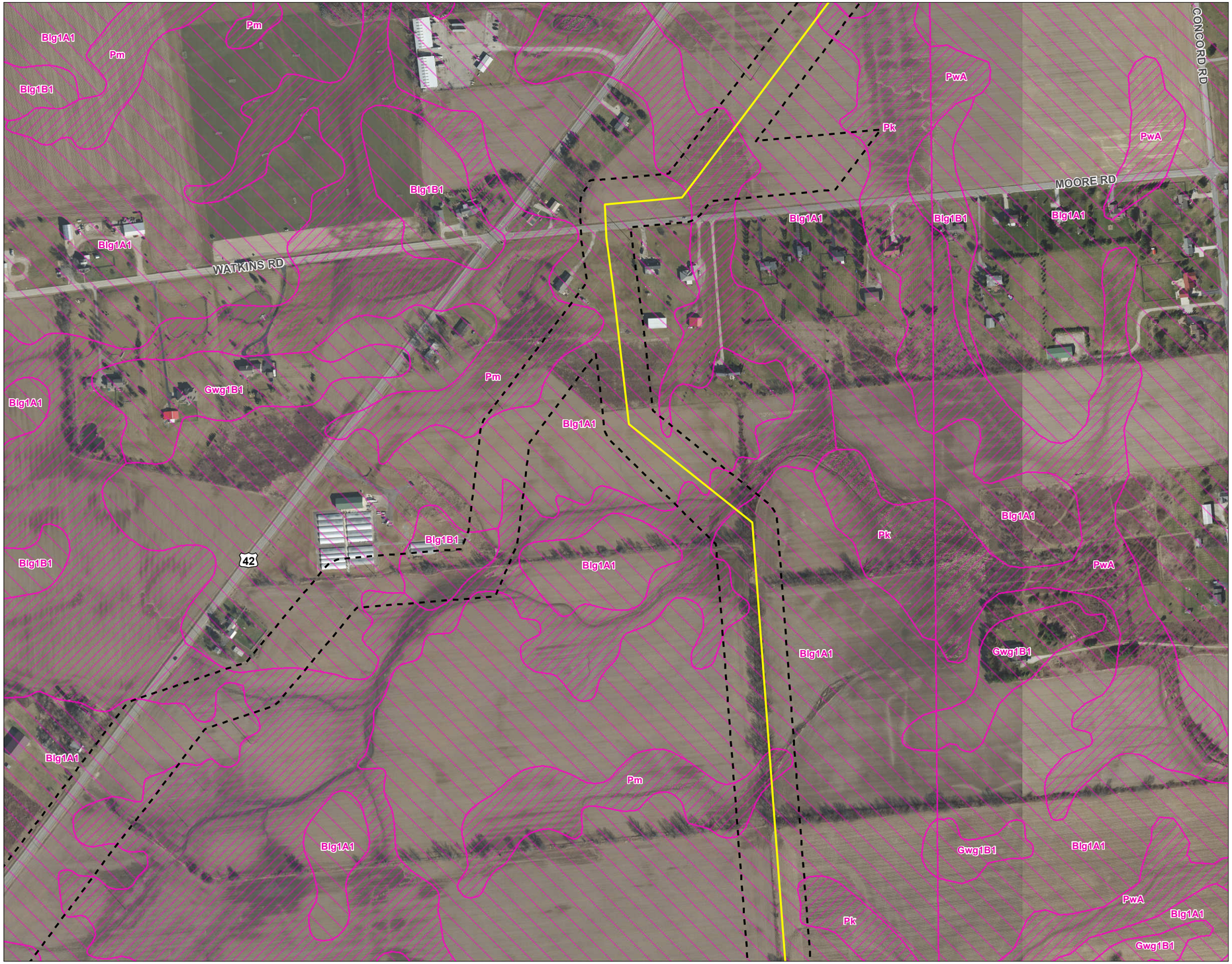


Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

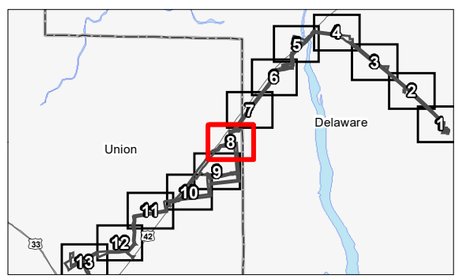
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

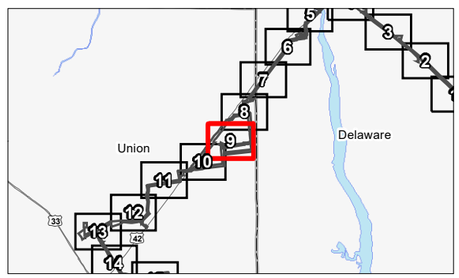
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

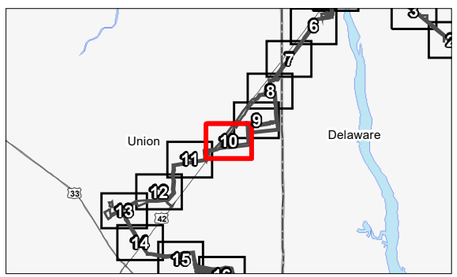
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

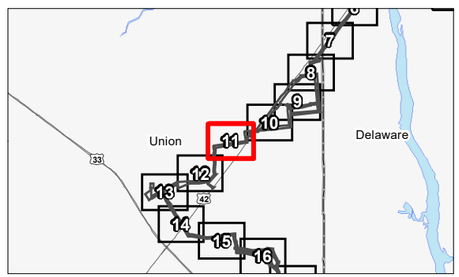
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

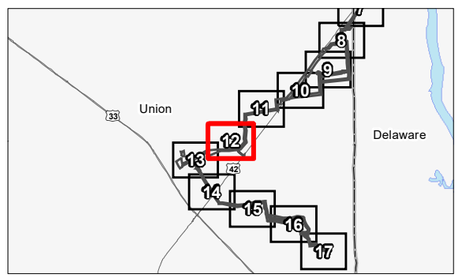
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

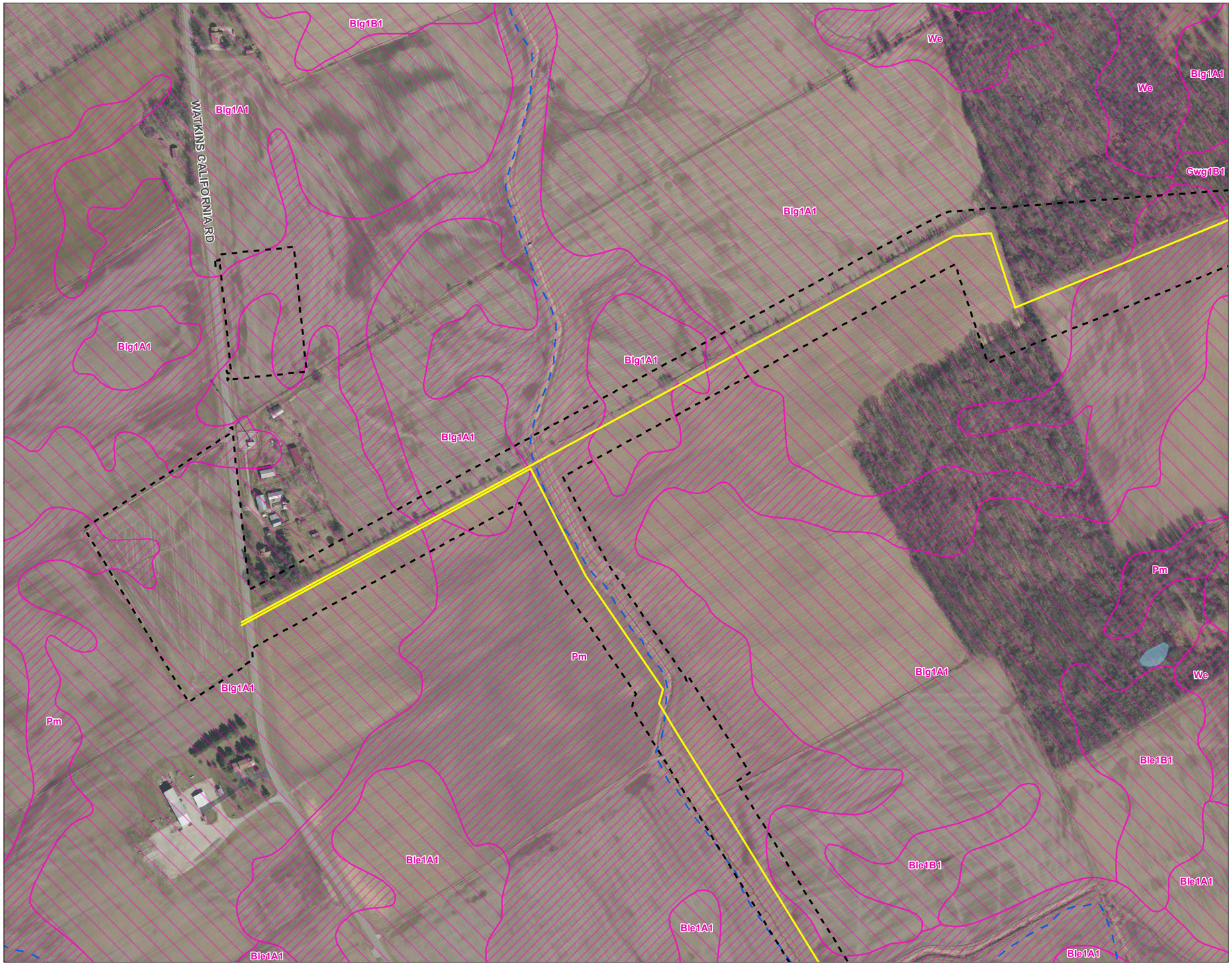


Figure No.
2

Title
NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

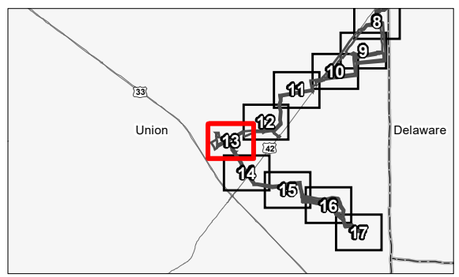
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

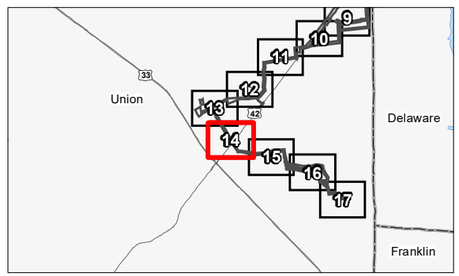
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

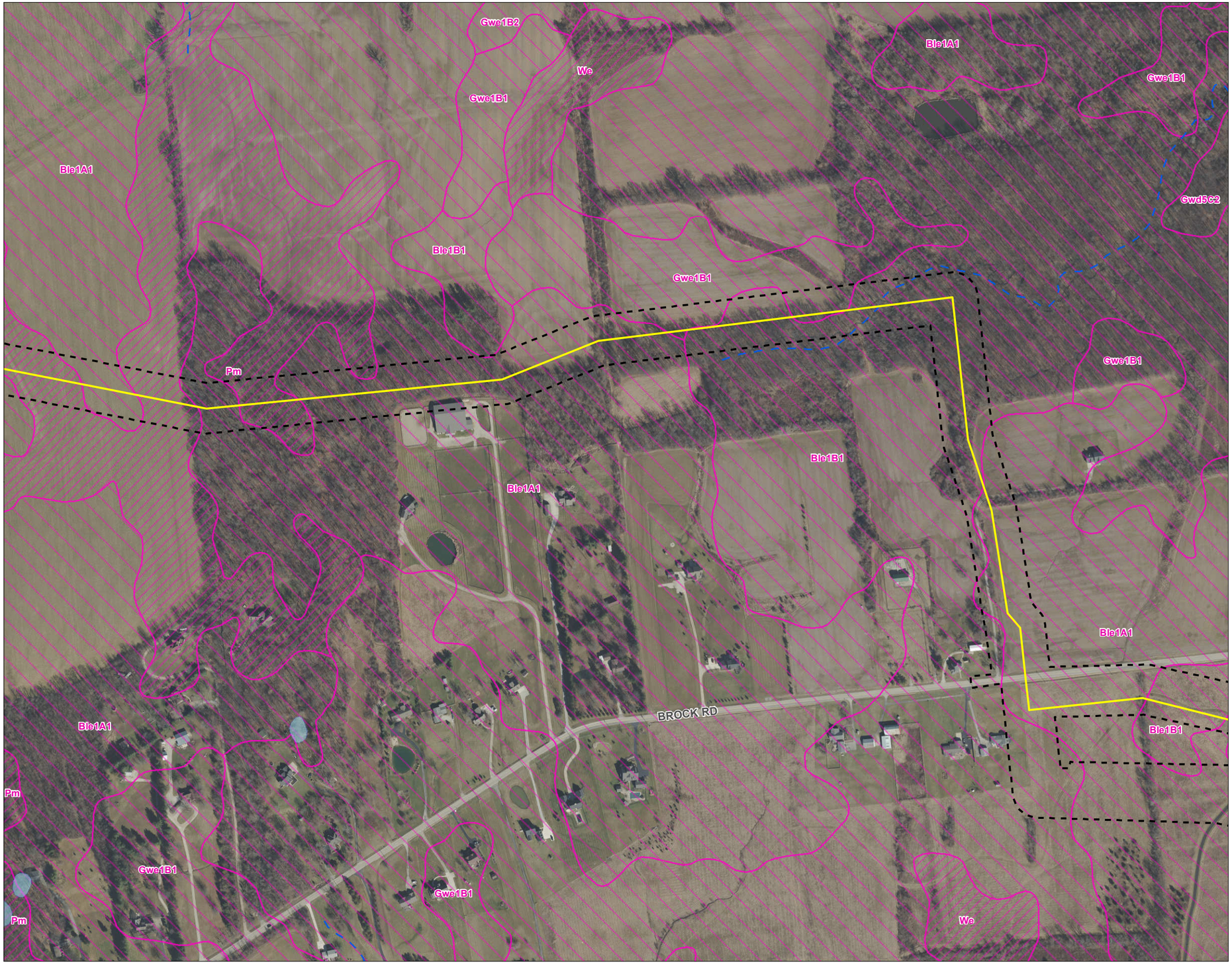


Figure No.

2

Title

NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

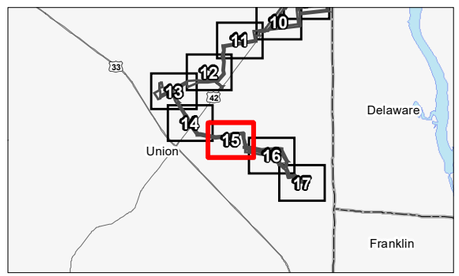
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

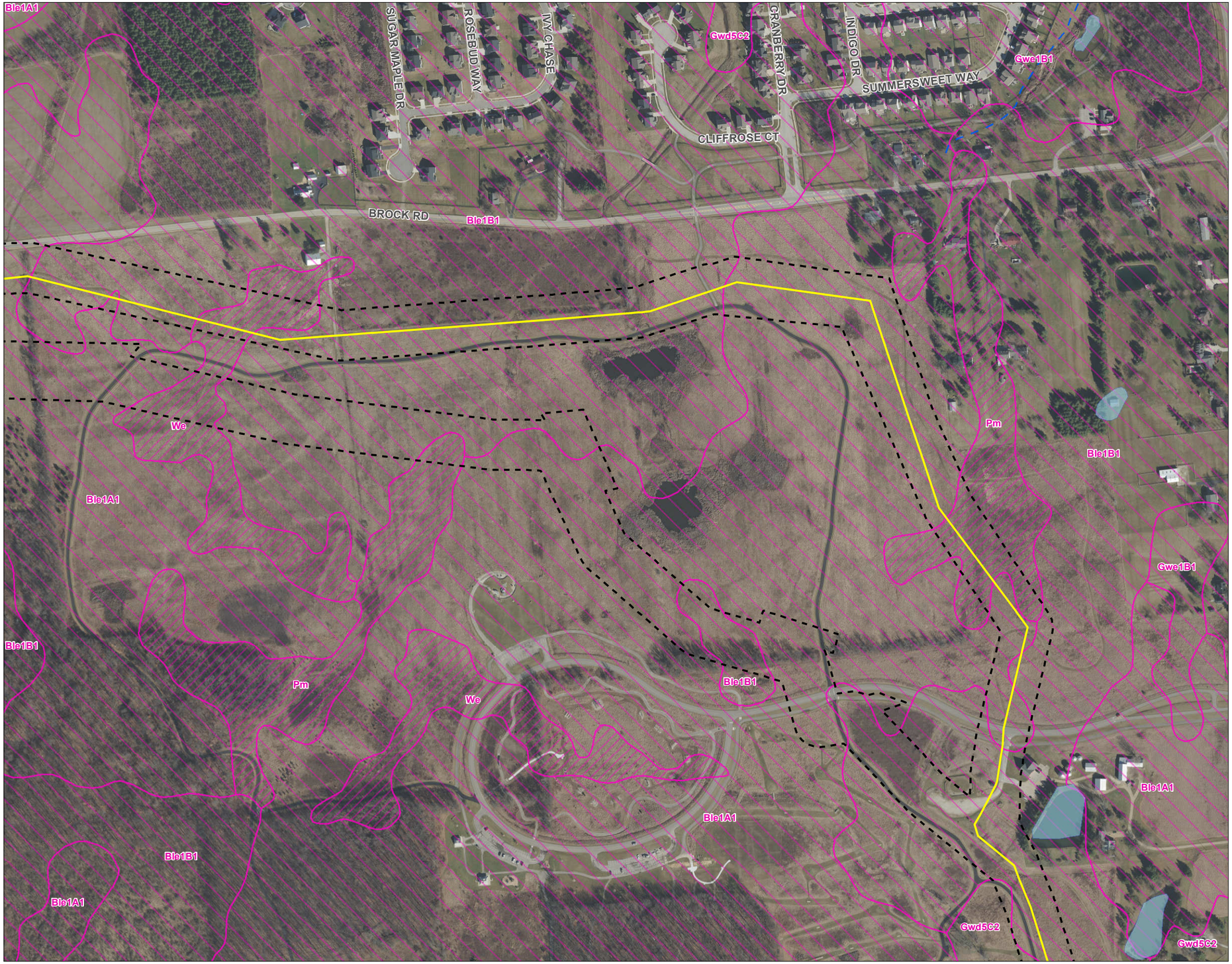


Figure No.
2

Title
NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

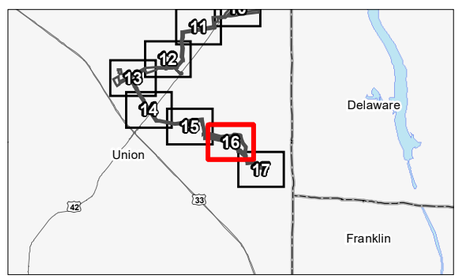
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
2

Title
NRCS Soil Survey Data and Hydric Ratings

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route

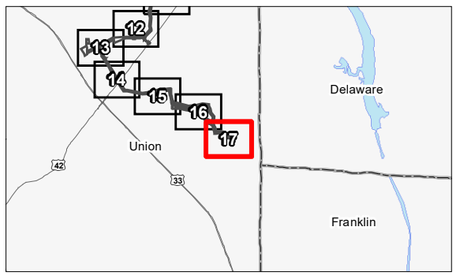
NRCS Soil Survey Data

Hydric Ratings

- Predominantly Hydric Soil
- Partially Hydric Soil
- Non-Hydric Soil

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, NRCS
3. Orthophotography: 2018 OGRIP

Stantec

A.3 FIGURE 3 – NATIONAL WETLANDS INVENTORY MAP

Figure No.

3

Title

National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

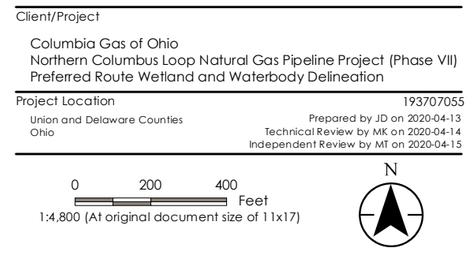
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

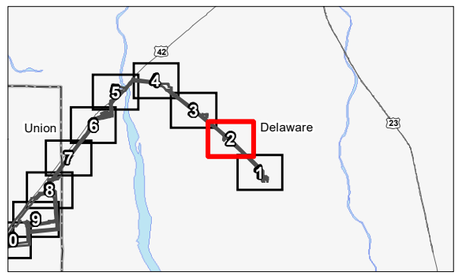
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

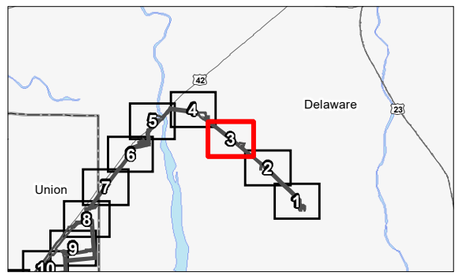
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

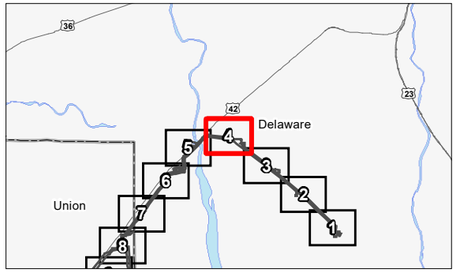
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

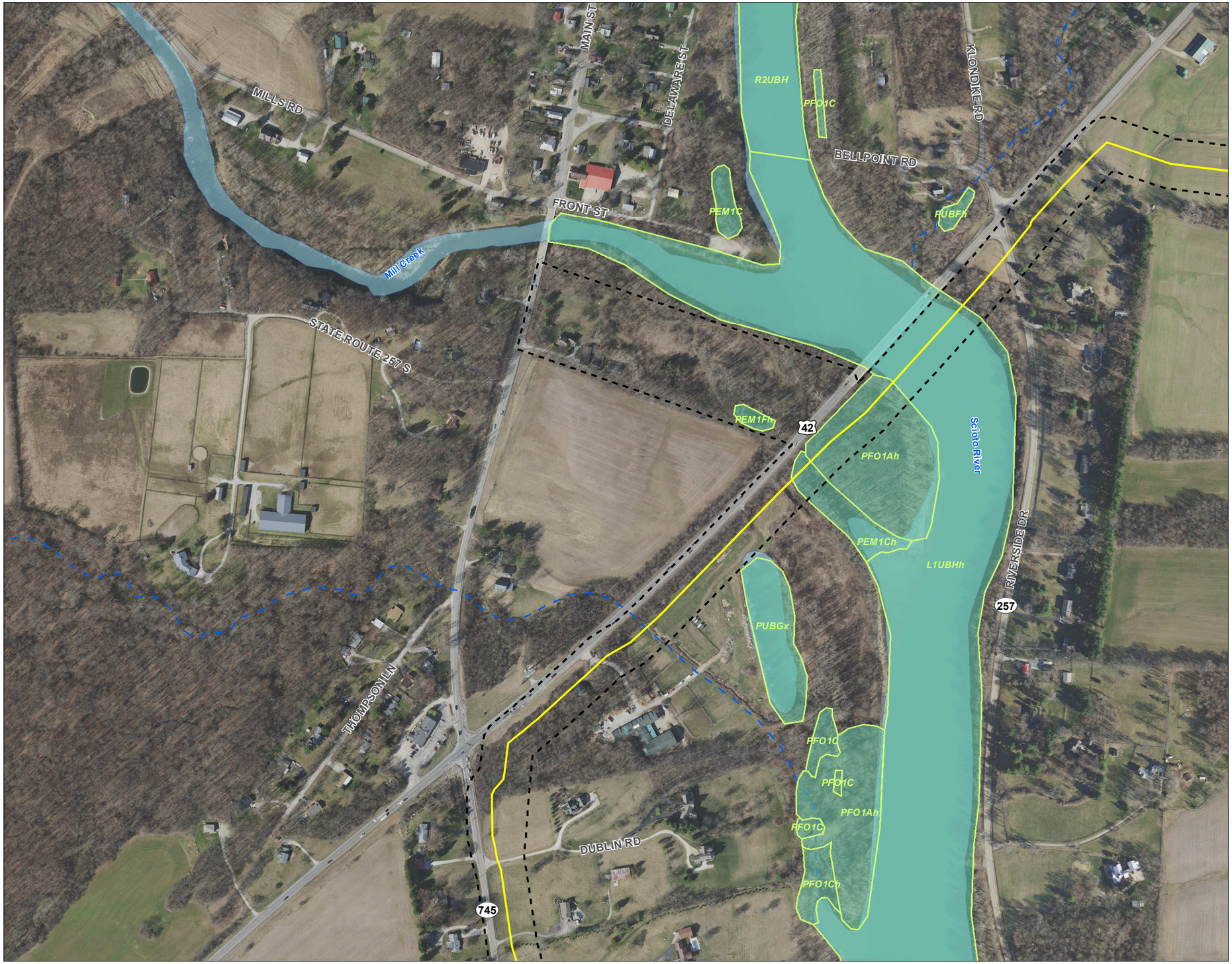


Figure No.

3

Title

National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

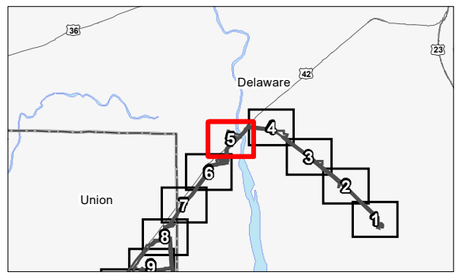
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

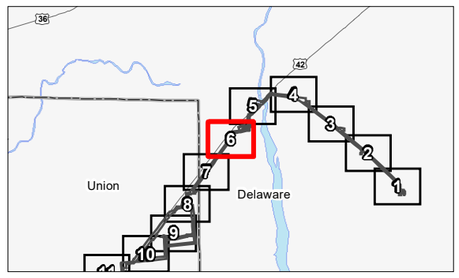
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

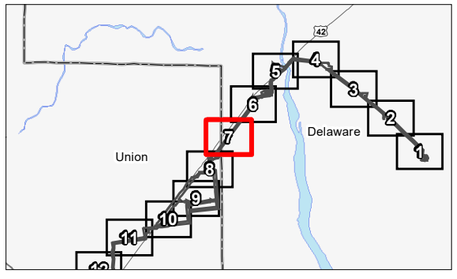
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

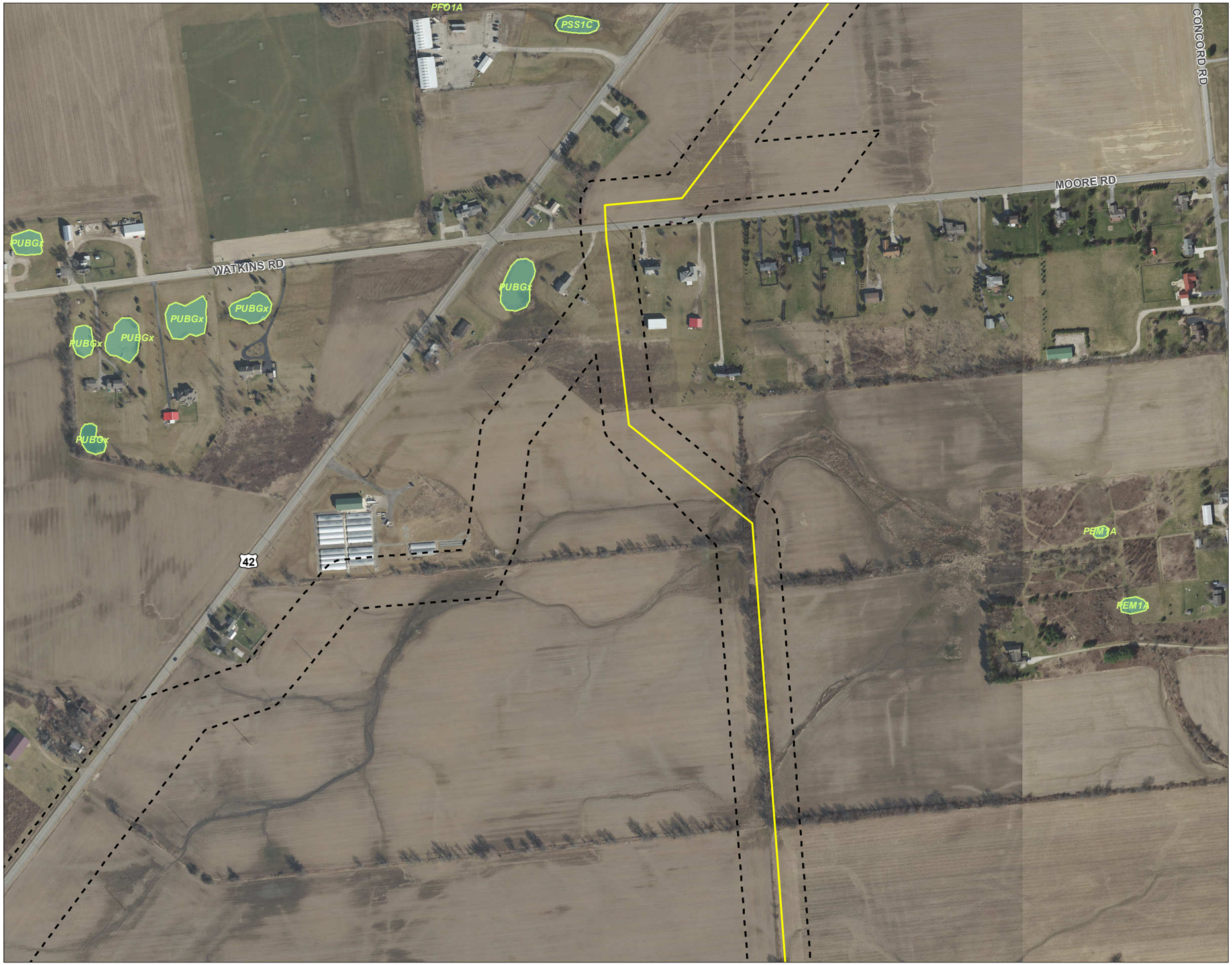


Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

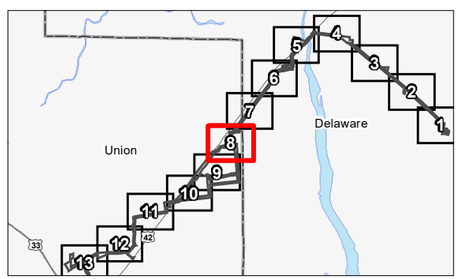
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

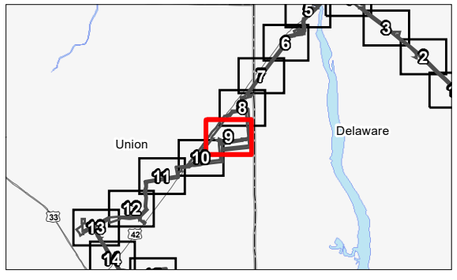
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

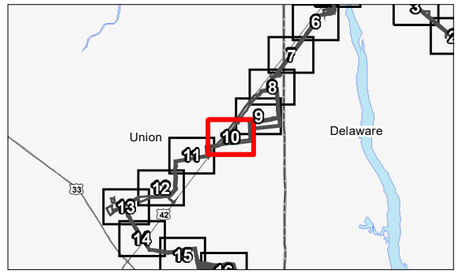
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

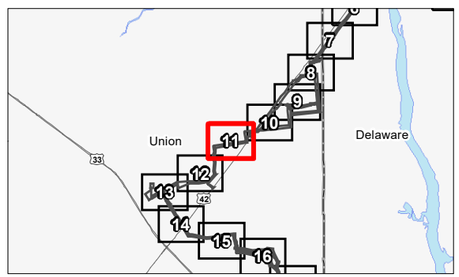
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

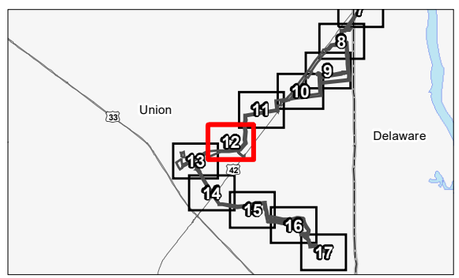
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

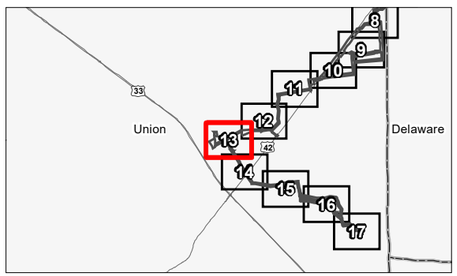
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

3

Title

National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

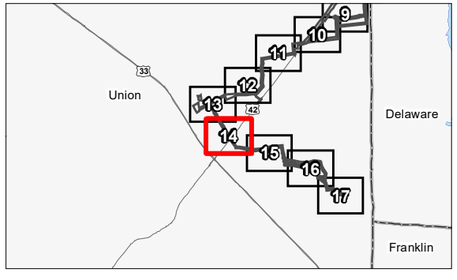
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

3

Title

National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

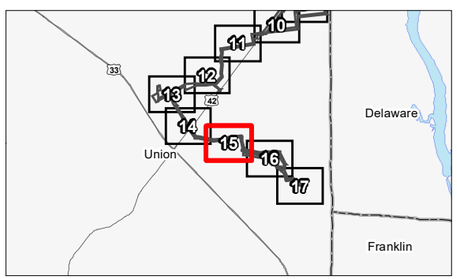
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.

3

Title

National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location

Union and Delaware Counties
Ohio

193707055

Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

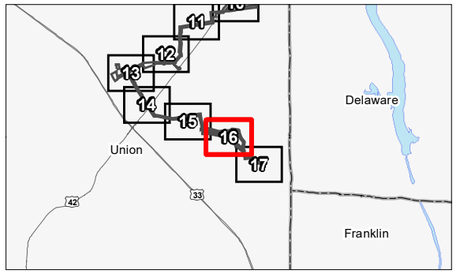
N

Legend

- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec

Figure No.
3

Title
National Wetlands Inventory Map

Client/Project

Columbia Gas of Ohio
Northern Columbus Loop Natural Gas Pipeline Project (Phase VII)
Preferred Route Wetland and Waterbody Delineation

Project Location
Union and Delaware Counties
Ohio

193707055

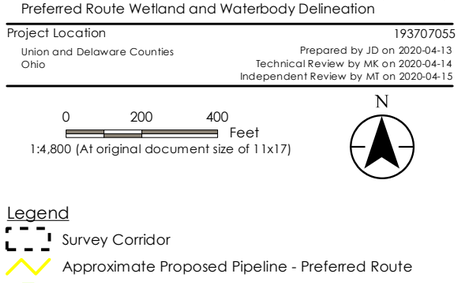
Prepared by JD on 2020-04-13
Technical Review by MK on 2020-04-14
Independent Review by MT on 2020-04-15

0 200 400 Feet
1:4,800 (At original document size of 11x17)

N

Legend
- Survey Corridor
- Approximate Proposed Pipeline - Preferred Route
- National Wetlands Inventory Feature

National Hydrography Dataset
- Perennial Stream
- Intermittent Stream
- Waterbody



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources Include: Stantec, Columbia Gas, USGS, NADS, OGRIP, USFWS
3. Orthophotography: 2018 OGRIP

Stantec