Wetland and Stream Delineation Report

Pipeline 34 Replacement Project

City of Oswego and Town of Scriba

Oswego County, New York

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1.0 INTRODUCTION

1.1 STUDY AREA DESCRIPTION

At the request of National Grid, Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) investigated an approximately 3-mile-long, 200-foot-wide corridor where a gas pipeline replacement is being proposed (hereafter referred to as the "Study Area") in the City of Oswego and Town of Scriba, Oswego County, New York (see Figure 1). The Study Area, as shown in Figure 2, begins at the 364 Walnut Street Gas Regulator Station in the City of Oswego to the north, and proceeds south to Dutch Ridge Road in the Town of Scriba. The area is roughly bounded by the CSX Railroad and State Route 481 to the west and County Route 53 to the east.

1.2 PURPOSE

The purpose of this study was to delineate and describe all on-site wetlands and streams that occur within the Study Area and could potentially fall under state or federal jurisdiction. Specific tasks performed for this study included 1) review of background resource data/mapping, 2) field delineation and flagging of potential state and federal jurisdictional wetlands and streams, 3) Global Positioning System (GPS) survey of delineated wetland and stream boundaries, 4) quantification of the area of wetlands and streams falling within the Study Area, and 5) description of these potential jurisdictional areas based on hydrology, vegetation, and soils data collected in the field.

This report describes the results of the wetland and stream delineations conducted by EDR. It is intended to provide the information necessary to identify jurisdictional areas and support a permit application to the United States Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC), as well as other environmental impact evaluations and plans conducted in support of the project (i.e., Article VII Application and Stormwater Pollution Prevention Plan).

1.3 RESOURCES

Materials and data supporting this investigation have been derived from a number of sources including United States Geological Survey (USGS) topographic mapping (Oswego East NY 7.5 minute quadrangle), United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, NYSDEC Freshwater Wetlands mapping, the Natural Resources Conservation Service (NRCS) Web Soil Survey (Soil Survey Staff, 2017), the NRCS List of Hydric Soils of the State of New York (NRCS, 2017), and recent aerial photography.

Vascular plant names used in this report follow nomenclature found in the New York Flora Atlas (Weldy et al., 2017), and wetland indicator status for plant species was determined by reference to the National Wetland Plant List (Lichvar et al., 2016). Jurisdictional areas were characterized according to the wetlands and deepwater habitats classification system used in NWI mapping (Cowardin, 1979).

1.4 QUALIFICATIONS

Wetland and stream delineations were conducted by EDR field ecologists John Wojcikiewicz and Molly Levy.

Mr. Wojcikiewicz is an Environmental Analyst/Field Biologist with over five years of experience in the natural resources field. He received a Bachelor of Science in Biology from Clarkson University and a Master's Degree in Biology from Virginia Commonwealth University. Mr. Wojcikiewicz's experience includes wetland and stream delineations, wetland permitting, ecological surveys and research, invasive species management, environmental impact analysis, and geographic information system (GIS) data analysis.

Ms. Levy is an Environmental Analyst with three years of experience in the environmental field. She received a Bachelor of Arts Degree in Biology from Amherst College and a Master's Degree in Environmental Science from the University of Illinois Springfield. Ms. Levy's experience includes wetland delineation, GIS data analysis, ecological surveys, conservation and environmental research, wildlife surveys, and environmental monitoring.

2.0 REGULATORY AUTHORITIES AND PERMITS

2.1 WATERS OF THE UNITED STATES

In accordance with the Section 404 of the Clean Water Act, the USACE has regulatory jurisdiction over Waters of the United States (WOUS). As defined by the USACE, WOUS include lakes, ponds, streams (intermittent and perennial), and wetlands. Wetlands are defined as "*those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" (EPA, 2001). Such areas are indicated by the presence of three conditions: 1) a dominance of hydrophytic vegetation 2) the presence of hydric soils, and 3) evidence of wetland hydrology during the growing season (Environmental Laboratory, 1987).

The jurisdictional status of on-site waters can only be determined following an official jurisdictional determination provided by the USACE, which typically includes a field visit. However, on June 5, 2007 the United States Environmental Protection Agency (EPA) and the Department of Army issued Clean Water Act jurisdiction guidance regarding the extent of their jurisdiction following the Supreme Court's decision in the *Rapanos* and *Carabell* cases (547 U.S., June 29, 2006). A summary of this guidance is as follows:

The USACE will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent;
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent; and
- Wetlands adjacent to, but that do not directly abut, a relatively permanent non-navigable tributary.

The USACE generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The USACE will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters; and
- Significant nexus includes consideration of hydrologic and ecologic factors.

A Section 404 permit from the USACE is required for activities that result in the placement of dredged or fill materials in WOUS.

In addition to Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbor Act (33 U.S.C. 401 et seq.) requires a permit from the USACE to construct any structure in or over any navigable water of the United States, as well as any proposed action that would alter or disturb (such as excavation/dredging or deposition of materials) these waters.

2.2 NEW YORK STATE FRESHWATER WETLANDS AND PROTECTED STREAMS

The Freshwater Wetlands Act (Article 24 and Title 23 of Article 71 of the Environmental Conservation Law) gives the NYSDEC jurisdiction over state-protected wetlands and adjacent areas (100-foot upland buffer). The Freshwater Wetlands Act requires the NYSDEC to map state-regulated wetlands (typically over 12.4 acres in size) to allow landowners and other interested parties a means of determining where state jurisdictional wetlands exist. Each of these wetlands has been assigned a classification of I (highest rank) through IV (lowest rank) based on a list of criteria for each class identified in NYSDEC rules and regulations.

Under Article 15 of the Environmental Conservation Law (Protection of Waters), the NYSDEC has regulatory jurisdiction over any activity that disturbs the bed or banks of protected streams. In addition, small lakes and ponds with a surface area of 10 acres or less, located within the course of a protected stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Article 15. Protected streams include any stream, or particular portion of a stream, that has been assigned by the NYSDEC any of the following classifications or standards: AA, A, B, or C(T) or C(TS) (6 NYCRR Part 701). A classification of AA or A indicates that the best use of the stream is as a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing. Streams designated (T) indicate that they support trout, while those designated (TS) support trout spawning. State water quality classifications of unprotected watercourses include Class C and Class D streams. Waters with a classification of D are suitable for fishing and non-contact recreation. An Article 15 permit is required from the NYSDEC for any disturbance to the bed and banks of a stream classified C(T) or higher.

3.0 PHYSICAL CHARACTERISTICS AND RESOURCES

3.1 VEGETATION AND LAND USE

The Study Area consists primarily of an existing National Grid gas line right-of-way (ROW). The ROW consists of a cleared corridor that accommodates the existing Pipeline 34 and Pipeline 51 gas lines, and is maintained in early successional vegetation. Additionally, the existing Pipeline 34 crosses through the Oswego County Legends Softball

complex, a grouping of six maintained softball fields surrounded by deciduous forest. Portions of the ROW adjacent to the cleared corridor are characterized primarily by deciduous forest and successional shrubland. Adjacent land uses include undeveloped forest land, successional communities, residential properties, roads, and utility infrastructure.

3.2 PHYSIOGRAPHY AND SOILS

The Study Area is located within the Ontario-Central Lowlands physiographic province of New York State. The topography of the Study Area is generally a result of glacial erosion from Pleistocene-era glaciers and post-glacial surface water drainage (USDA 1981). The bedrock underlying most Oswego County is flat-lying sedimentary rock. The groups of bedrock are in broad bands that extend east and west across the county. Soils within the region are generally loamy, deep and finely textured, and were derived from limestone and calcareous shale.

Elevations within the Study Area range from approximately 350 to 400 feet above mean sea level (Figure 3). The Web Soil Survey of Oswego County (Soil Survey Staff, 2017) indicates the occurrence of 12 soil series within the Study Area (Figure 4). Of these, the Ira and Sodus very stony soils, moderately steep series and Ira gravelly fine sandy loam series are the most dominant. Soil drainage in the Study Area ranges from very poorly drained to well drained, and soil textures are primarily sandy loams. Table 1 lists the soil series found within the Study Area and their characteristics. "Hydric" and "Potentially Hydric" designations were based on information obtained on the USDA Web Soil Survey. Although soil series may be generally classified as hydric or potentially hydric in the online databases, this is for general use and does not supersede specific conditions documented in the field.

Table 1. Study Area Soils

Mapping Unit	Series	Slope (%)	Drainage[1]	Hydric[2]	Potentially Hydric[3]
Hw	Humaquepts and Fibrists, ponded	0-1	VPD	Yes	No
IrB	Ira gravelly fine sandy loam	3-8	MWD	No	No
IrC	Ira gravelly fine sandy loam	8-15	MWD	No	No
IsC	Ira-Sodus gravelly fine sandy loams, rolling	8-15	MWD	No	No
IUD	Ira and Sodus very stony soils, moderately steep	15-25	MWD	No	No
Pa	Palms muck	0-2	VPD	Yes	No
ScB	Scriba gravelly fine sandy loam	0-8	SPD	No	Yes

Mapping Unit	Series	Slope (%)	Drainage[1]	Hydric[2]	Potentially Hydric[3]
SDB	Scriba very stony soils, gently sloping	3-8	SPD	No	Yes
SgB	Sodus gravelly fine sandy loam	3-8	WD	No	No
SgC	Sodus gravelly fine sandy loam	8-15	WD	No	No
SgD	Sodus gravelly fine sandy loam	15-25	WD	No	No
SHF	Sodus soils, very steep	35-45	WD	No	No

[1] Soil drainage is represented by the following abbreviations: "WD" = well drained, "MWD" = moderately well drained, "SPD" = somewhat poorly drained, and "VPD" = very poorly drained.
[2] "Yes" indicates this soil is listed as containing 66% or more hydric components within the map unit as listed on the USDA Web Soil Survey.
[3] "Yes" indicates this soil is listed as containing 1% to 65% hydric components within the map unit as listed on the USDA Web Soil Survey.

3.3 HYDROLOGY

The Study Area is located on the border of the Oswego and Salmon-Sandy drainage basins, which are part of USGS Hydrologic Units 04140203 and 04140102, respectively. The majority of surface hydrology within the Study Area is generated by direct precipitation and surface water run-off from adjacent land. Total annual precipitation (from 2000 to 2017) averages 43.32 inches at the nearby Oswego East, New York weather station (NOAA, 2017).

The Oswego River and Lake Ontario are the dominant hydrologic feature near the Study Area. The Oswego River is located approximately 3,000 feet from the western border of the Study Area, and runs northwest toward Lake Ontario. Lake Ontario is located approximately two miles northwest of the Study Area. The Lake Ontario drainage basin includes approximately 2,460 square miles of land and 326 miles of shoreline in New York State (NYSDEC, 2017). Lake Ontario is the smallest of the Great Lakes at approximately 190 miles long by 40 miles wide, with an average depth of 280 feet. The lake drains through the St. Lawrence River into the Atlantic Ocean.

3.4 FEDERAL AND STATE MAPPED WETLANDS AND STREAMS

National Wetland Inventory (NWI) mapping indicates the presence of six wetlands within the Study Area (Figure 5). The total acreage of NWI mapped wetlands within the Study Area is 4.92 acres. NWI mapping categorizes wetlands based on their vegetative community. NWI mapping indicates that forested/shrub wetlands are the dominant wetland community in the area, totaling approximately 4.38 acres. One NWI-mapped wetland community is a freshwater pond (0.53 acre).

Review of NYSDEC Freshwater Wetlands mapping indicates that there is one state-regulated wetland that overlaps the Study Area (Figure 5). This wetland is designated as Class I and is part of NYSDEC Wetland OE-10. This wetland has a total size of approximately 48.7 acres, of which 1.23 acres occur within the Study Area.

Based on available NYSDEC stream classification mapping, there are no NYSDEC-protected or unprotected streams within the Study Area.

4.0 ON-SITE WETLAND AND STREAM DELINEATION

4.1 METHODOLOGY

A preliminary desktop analysis of the Study Area was conducted prior to performing on-site delineations. The desktop analysis was performed using NWI mapping, NYSDEC mapping, USGS topogoraphy mapping, soils data, and aerial photography.

EDR personnel conducted field delineation of wetlands and streams in the Study Area on October 11 - 13, 2017. The identification of wetland boundaries was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *New York State Freshwater Wetlands Delineation Manual* (NYSDEC, 1995). Determination of wetland boundaries was also guided by the methodologies presented in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0* (USACE, 2012). Attention was given to the identification of potential hydrologic connections between wetlands and areas that could influence their jurisdictional status.

Wetland boundaries were defined in the field with sequentially-numbered pink surveyor's flagging, and were subsequently mapped using a Trimble GeoExplorer® 6000 Series unit with reported sub-meter accuracy. Due to lack of access, portions of three wetland boundaries were approximated based on aerial imagery, topographic data, and field evaluation. At each delineated wetland data were collected from sample plots in representative wetland cover types, and recorded on USACE Routine Wetland Determination forms (Appendix B). The data collected at each wetland included dominant vegetation, hydrology indicators, and soils characteristics.

The Regional Supplement lists the following primary indicators of wetland hydrology: (A1) surface water, (A2) high water table, (A3) saturation, (B1) water marks, (B2) sediment deposits, (B3) drift deposits, (B4) algal mat or crust, (B5) iron deposits, (B7) inundation visible on aerial imagery, (B8) sparsely vegetated concave surface, (B9) water-stained leaves, (B13) aquatic fauna, (B15) marl deposits, (C1) hydrogen sulfide odor, (C3) oxidized rhizospheres on living roots, (C4) presence of reduced iron, (C6) recent iron reduction in tilled soils, and (C7) thick muck surface. Per

the Regional Supplement, the presence of any one of these "primary" indicators is sufficient evidence that wetland hydrology is present. In addition, the Regional Supplement identifies the following secondary indicators which were also used by EDR personnel to determine wetland hydrology: (B6) surface soil cracks, (B10) drainage patterns, (B16) moss trim lines, (C2) dry-season water table, (C8) crayfish burrows, (C9) saturation visible on aerial imagery, (D1) stunted or stressed plants, (D2) geomorphic position, (D3) shallow aquitard, (D4) microtopographic relief, and (D5) FAC-neutral test. In accordance with the Regional Supplement, in the absence of a primary indicator, the presence of any two of these "secondary" indicators were considered a suitable indication of wetland hydrology.

Assessment of vegetation focused on the identification of dominant plant species in four categories: trees (>3" diameter at breast height), saplings/shrubs (<3.0" diameter at breast height and >3.2' tall), herbs (<3.2' tall), and woody vines. Dominance within each stratum was measured by visually estimating those species having the largest relative basal area (trees), greatest height (saplings/shrubs), greatest number of stems (woody vines), and greatest percentage of aerial coverage (herbaceous) by species. Wetland indicator status for dominant plant species was determined by reference to the National Wetland Plant List (Lichvar et al., 2016). Wetlands are indicated by a dominance of hydrophytic plant species.

Hydric soils are those that are poorly drained and are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil layer. The presence of hydric soils is indicative of the presence of wetlands (Environmental Laboratory, 1987). Hydric soil conditions were determined in the field through observation of composition, color, and morphology. Soil data were collected by using a soil auger and tiling spade. Soil colors were determined using Munsell Soil Charts (Munsell Color, 2009). Information concerning soil series, color, texture, and matrix and mottle color was recorded for each delineated wetland and used to determine whether the soils displayed hydric characteristics.

Photographs were taken of each wetland and stream delineated within the Study Area. Representative photographs of the delineated areas are included in Appendix C.

In response to a request from the NYSDEC, a follow-up field visit was conducted on August 30, 2018 to determine if hydrologic connections existed between delineated Wetlands F, G and H and NYS Freshwater Wetland OE-10 (delineated as Wetland D). Hydrologic connections were documented with photos (see Appendix C) and field notes.

4.2 RESULTS

EDR ecologists identified a total of 15 wetlands within the Study Area. No streams were identified within the Study Area. Information pertaining to the individual delineated wetlands is summarized in Table 2. Wetlands were categorized as one or more of the following community types: palustrine emergent wetland (PEM), palustrine scrub-shrub wetland (PSS), palustrine forested wetland (PFO), and open water (POW) in accordance with the Cowardin *et. al.* (1979) classification system.

Table 2: Delineated Wetlands

Delineation ID[1]	Latitude of Centroid	Longitude of Centroid	Wetland Type Acreage Within Wetland Study Area[2]				Total Wetland Acreage Within Wetland Study Area	Stream Present	Federal Jurisdiction[3]	State Jurisdiction[4]	Appendix A: Figure 5 - Sheet #
			PFO	PEM	PSS	POW					
A	43.448	-76.487		0.03			0.03	--	Yes	--	1
B	43.4427	-76.4836		0.04			0.04	--	Yes	--	2
C	43.4424	-76.4836		0.05			0.05	--	Yes	--	2
D	43.4406	-76.482		0.42	0.47		0.89	--	Yes	Yes	2
E	43.4399	-76.4805		0.03			0.03	--	Yes	--	3
F	43.4386	-76. 4783		0.07	0.15		0.22	--	Yes	--	3
G	43.4374	-76.4769		0.21			0.21	--	Yes	--	3,4
H	43.4354	-76.4758	0.53		0.36		0.89	--	Yes	--	4
I	43.4336	-76.4724	1.44	0.62		0.35	2.40	--	Yes	--	5
J	43.4297	-76.4712	0.07	0.32			0.39	--	Yes	--	5
L	43.4282	-76.4697		0.10			0.10	--	Yes	--	5
M	43.4279	-76.4696		0.13			0.13	--	Yes	--	6
N	43.4227	-76.4679	0.39	0.47	0.06		0.92	--	Yes	--	7
O	43.4184	-76.4643	0.07				0.07	--	Yes	--	7
P	43.4389	-76.4803		0.12			0.12	--	Yes	--	2

[1]Field ID assigned by EDR. Some wetlands identified in the field are located outside of the Wetland Study Area, and are not addressed in this report.
[2]Wetland community types are based upon the Cowardin et al. (1979) classification system: PSS = Palustrine Scrub-Shrub, PEM = Palustrine Emergent, POW=Palustrine Open Water, and PFO = Palustrine Forested.
[3]Based on visual observation of hydrologic connectivity in the field and review of available spatial data. Final jurisdictional determination to be made by the USACE.
[4]Based on existing NYSDEC mapping of freshwater wetlands and streams. Final determination to be made by NYSDEC.

4.2.1 Wetlands

Delineated wetlands within the Study Area are depicted in Figure 5 and described below.

Emergent Wetlands – Thirteen of the wetlands identified within the Study Area have substantial areas dominated by emergent vegetation. Emergent wetlands are generally characterized by the dominance of erect rooted herbaceous wetland plants and a more persistent and/or deeper inundation than scrub-shrub wetlands. Emergent wetlands delineated within the Study Area were dominated by herbaceous plants such as purple-loosestrife (*Lythrum salicaria*), common rush (*Juncus effuses*), fox sedge (*Carex vulpinoidea*), American tearthumb (*Persicaria sagittate*), woolgrass (*Scirpus cyperinus*), orange jewelweed (*Impatiens capensis*), poison ivy (*Toxicodendron radicans*), and sensitive fern (*Onoclea sensibilis*) (see representative Photos 1-8 in Appendix C). Evidence of wetland hydrology in the emergent wetlands included standing surface water, a high water table, saturated soils, microtopographic relief, and FAC-neutral test. Hydric soil conditions observed within emergent wetlands included low chroma matrix colors with a dark surface ranging from black to brown (10YR 2/1, 10YR 4/3) with high chroma redox concentrations (7.5YR 5/6), depleted matrix (F3) or a stripped matrix (S6) (see representative Photos 15, 16, and 20 in Appendix C). The majority of soils sampled within emergent wetlands were silty to gravelly sandy loams.

Vegetation observed in the uplands adjacent to delineated emergent wetlands included common buckthorn (*Rhamnus cathartica*), quaking aspen (*Populus tremuloides*), American ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), American hophornbeam (*Ostrya virginiana*), yellow birch (*Betula alleghaniensis*) sugar maple (*Acer saccharum*), northern red oak (*Quercus rubra*), American beech (*Fagus grandifolia*), brambles (*Rubus sp.*), Canada goldenrod (*Solidago canadensis*), and poison ivy. The uplands displayed no evidence of wetland hydrology and the loose dry silt loam soils, ranging from brown to dark yellowish brown (10YR 3/2-10YR 4/4), were not indicative of hydric conditions (see representative Photo 13 in Appendix C).

Forested Wetlands – Five wetlands within the Study Area were found to contain areas of forest vegetation. Forested wetland communities are typically dominated by trees that are at least 20 feet tall, but also included an understory of shrub and herbaceous species. Dominant overstory species in the delineated forested wetlands included red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), sugar maple, and yellow birch, with American elm (*Ulmus americana*) also present in the canopy. Understory vegetation typically included saplings of the above-mentioned species, or shrub species such as winterberry (*Ilex verticillata*), silky dogwood (*Cornus amomum*), willow species (*Salix sp.*), and Morrow's honeysuckle (*Lonicera morrowii*). Herbaceous species in forested wetlands included sensitive, eastern poison ivy, woolgrass, royal fern (*Osmunda regalis*), cinnamon fern (*Osmundastrum cinnamomeum*), purple-loosestrife, and sedges (*Carex sp.)* (see representative Photos 9 to 11 in Appendix C). Evidence of wetland hydrology in the forested wetlands within the Study Area included standing surface water, a high

water table, saturated soils, a shallow aquitard, and FAC-neutral Test. These wetlands also displayed hydric soil characteristics, including a depleted matrix (F3) or dark surface (F7) with low chroma matrix colors (10YR 2/1, 10YR 3/1) and redox concentrations (7.5YR 5/6) (see representative Photo 18 in Appendix C).

Uplands adjacent to the forested wetland communities displayed no evidence of wetland hydrology. Vegetation included American witch-hazel (*Hamamelis virginiana*), American hornbeam (*Carpinus caroliniana*), mapleleaf viburnum (*Viburnum acerifolium*), American beech (*Fagus grandifolia*), and clubmoss species (*Lycopodium sp.*). The upland soils consisted of gravelly and sandy silt loam with some organic content. The soils ranged from strong brown to yellowish brown (7.5YR 4/6, 10YR 5/6) and were not indicative of hydric conditions (see representative photo 14 in Appendix C).

Scrub-shrub Wetlands – A total of five wetlands within the Study Area were found to contain scrub-shrub vegetation. Scrub-shrub wetlands are generally characterized by dense stands of shrub species less than 20 feet tall. Delineated scrub-shrub wetlands were dominated by southern arrowwood (*Viburnum dentatum*), common buckthorn, and speckled alder (*Alnus incana*). Herbaceous vegetation in these areas included broadleaf cattail (*Typha latifolia*), sensitive fern, reed canary grass (*Phalaris arundinacea*), common rush, fringed willowherb (*Epilobium ciliatum*), and American tearthumb (see representative Photo 12 in Appendix C). Soils sampled within scrub-shrub wetlands were characterized by low chroma matrix color, with a dark surface (F6), ranging from black to brown (10YR 2/1, 10YR 3/1 and 10YR 3/2) with high chroma redox concentrations within the matrices (7.5YR 5/6, 7.5YR 5/8) (see representative Photos 17 and 19 in Appendix C). Soil textures in the scrub-shrub wetlands are generally characterized silt loams or sandy loams. Evidence of wetland hydrology included soil saturation, standing surface water, a high water table, and FAC-neutral Test.

Uplands adjacent to the scrub-shrub wetlands displayed no evidence of wetland hydrology. Vegetation observed in adjacent uplands included sugar maple, American witch-hazel, American hornbeam, mapleleaf viburnum, common buckthorn, tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), American beech, clubmoss species, American ash, brambles, field horsetail (*Equisetum arvense*), southern arrowwood (*Viburnum dentatum*), poison ivy, and Canada goldenrod. Upland soils were sandy gravelly silt loams, ranging from strong brown to yellowish brown (7.5YR 4/6, 10YR 5/6) and displayed no evidence of hydric conditions.

Open Water Wetlands – Wetland I included an area of open water that was surround by emergent wetland. The open water portion of this wetland was 1-4 feet deep and was generally devoid of vegetation other than submerged aquatic vegetation.

EDR ecologists collected data at all of the wetlands delineated within the Study Area, except in four instances, where two or more small wetlands were proximate to each other (or connected just outside of the Study Area) and displayed very similar wetland indicators. In those cases, data were collected at a sample point within one of the wetlands which was considered representative of both wetlands. Table 3 below summarizes the wetlands for which data were collected, and the wetlands for which representative data were used. Wetland data forms are included as Appendix B.

Table 3: Data Collected for Delineated Wetlands

Delineation ID[1]	Latitude of Centroid	Longitude of Centroid	Wetland Type Acreage Within Wetland Study Area[2]				Data Collected	Representative Wetland	Total Wetland Acreage Within Wetland Study Area	Appendix A: Figure 5 - Sheet #
			PFO	PEM	PSS	POW				
A	43.448	-76.487		0.03			Yes	-	0.04	7
B	43.4427	-76.4836		0.04			Yes	-	0.04	6
C	43.4424	-76.4836		0.05			No	Wetland B	0.05	6
D	43.4406	-76.482		0.42	0.47		Yes	-	0.84	5, 6
E	43.4399	-76.4805		0.03			No	Wetland F	0.03	5
F	43.4386	-76. 4783		0.07	0.15		Yes	-	0.21	5
G	43.4374	-76.4769		0.21			Yes	-	0.21	5
H	43.4354	-76.4758	0.53		0.36		Yes	-	0.89	4
I	43.4336	-76.4724	1.44	0.62		0.35	Yes	-	2.38	4
J	43.4297	-76.4712	0.07	0.32			Yes	-	0.27	3
L	43.4282	-76.4697		0.10			No	Wetland M	0.10	3
M	43.4279	-76.4696		0.13			Yes	-	0.13	3
N	43.4227	-76.4679	0.39	0.47	0.06		Yes	-	0.92	2
O	43.4184	-76.4643	0.07				Yes	-	0.07	1
P	43.4389	-76.4803		0.12			No	Wetland F	0.12	5

4.2.2 Hydrologic Connections

A follow-up evaluation of potential hydrologic connections between Wetlands F, G, and H and state-regulated Wetland OE-10 (delineated Wetland D) revealed the following:

Wetland F drains west down a moderate slope towards Wetland OE-10. Wetland F continues west outside of the study area as an emergent/forested wetland and then narrows into an ephemeral drainage until it reaches the

boundary of a railroad ROW. At this point the wetland expands into an emergent community before draining under the railroad and into state-regulated Wetland OE-10 via a culvert. The distance between the edge of the delineated portion of Wetland F and the boundary of mapped Wetland OE-10 is 474 feet.

Wetland G drains west down a moderate/steep slope towards Wetland OE-10. Wetland G continues west outside of the study area as a narrow emergent wetland or ephemeral drainage until it reaches the bottom of the slope, were it expands into a forested wetland, and then an emergent community before connecting with state-regulated Wetland OE-10. The distance between the edge of the delineated portion of Wetland G and the boundary of mapped Wetland OE-10 is 471 feet.

Wetland H drains west down a moderate slope towards Wetland OE-10. Wetland H continues west outside of the study area as a narrow emergent wetland, and then narrows into an ephemeral drainage until it reaches the bottom of the slope, where it expands into a forested wetland, and connects with state-regulated Wetland OE-10. The distance between the edge of the delineated portion of Wetland H and the boundary of mapped Wetland OE-10 is 530 feet.

A map illustrating the location of these hydrologic connections is included as Figure 5. Representative photos of the hydrologic connections and Wetland OE-10 are included as Photos 21-24 in Appendix C.

5.0 CONCLUSIONS

EDR ecologists identified a total of 15 wetlands within the Study Area for the proposed Pipeline 34 replacement project. Wetlands were identified based on the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. The identified wetlands include emergent, scrub-shrub, open water and forested wetland communities. There were no streams identified within the Study Area. The primary functions provided by wetlands within the Study Area appear to include wildlife habitat, flood flow attenuation, and water quality improvement.

All of the wetlands appear to have surface water connections to other WOUS, and therefore, are likely to be considered jurisdictional by the USACE under Section 404 of the Clean Water Act. None of the identified waters are navigable and therefore Section 10 jurisdiction does not apply. One delineated wetland (Wetland D) is likely to be under state jurisdiction pursuant to Article 24 due to its occurrence within the mapped boundary of Freshwater Wetland OE-10, as shown on the NYSDEC Freshwater Wetlands Maps. Hydrologic connections were found to exist between delineated Wetlands F, G and H and NYS Freshwater Wetland OE-10. However, all of the delineated wetlands are in excess of 450 feet from the mapped boundary of Wetland OE-10, are connected to this wetland by

narrow corridors of wetland vegetation and ephemeral drainage channels, and are of distinctly different character from Wetland OE-10. NYS Freshwater Wetlands are classified by the NYSDEC based on their physical characteristics and the wetland functions and values they provide. Wetland OE-10 is 29.6 acres in size and classified as a Class 1 wetland. Although the basis for this classification is not publicly available, it is a deep water marsh in a valley setting, with a large area of open water and standing dead timber, (possibly as a result of beaver activity (see Photo 24 in Appendix C). It is distinctly different from the relatively small, shallow areas of emergent, scrub-shrub and forested hillside seep communities that constitute delineated Wetlands F, G and H. Therefore, based on their distance of separation, narrow/ephemeral hydrologic connections, and distinctly different characteristics, functions and values, it does not appear that these delineated wetlands should be considered a part of state-regulated Wetland OE-10. However, final determination of jurisdictional status of waters delineated within the Study Area must be made by the USACE and NYSDEC.

6.0 REFERENCES

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APPENDIX A

Figures

APPENDIX B

Routine Wetland Determination Data Sheets

APPENDIX C

Photos of Representative Wetland Communities