Wetland Delineation Report

Baron Winds Project

Towns of Cohocton, Dansville,
Fremont, and Wayland
Steuben County, New York

Prepared for:

everpower™

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

Baron Winds LLC (the Applicant), a wholly owned subsidiary of EverPower Wind Holdings, Inc. is proposing to construct a wind energy generation facility and associated necessary infrastructure (the Facility) in the Towns of Cohocton, Dansville, Fremont, and Wayland in Steuben County, New York (See Figure 1). The Facility Area is roughly bounded by New York State Route 390 to the north and northeast, New York State Route 86 to the south and County Route 36 to the west (See Figure 1). The Facility will consist of up to 76-utility scale wind turbines with a total generating capacity of up to 300 MW. Other proposed components will include: access roads, collection lines (below grade and overhead), up to three permanent meteorological towers, one operations and maintenance (O&M) building, up to three temporary construction staging/laydown areas, a collection substation, and a point of interconnect (POI) substation (see Figure 2).

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) was retained to identify all wetlands and streams within and adjacent to the proposed Facility components described above (hereafter referred to as the "Study Area" - see Figure 3). Specifically, the Study Area includes a 200-foot corridor along all proposed access roads and collection lines, a 200-foot radius around each proposed turbine and permanent meteorological tower, and a 200-foot radius around the proposed locations of the collection substation, POI substation, laydown yards, and O&M building. Wetland and stream delineations took place within the Study Area during the months of October and November 2016 and April, May, June and September 2017.

1.2 PURPOSE

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

This document is intended to provide all of the information necessary to identify and document on-site delineations, facilitate jurisdictional determinations, and support state and federal permit applications.

1.3 RESOURCES

Data supporting this investigation have been derived from a number of sources including USGS topographic mapping (Wayland, Haskinville, and Avoca, NY 7.5 minute quadrangles), United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, NYSDEC Freshwater Wetlands mapping, 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, 2015), and recent aerial photography.

Vascular plant names 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 in accordance with the wetlands and deepwater habitats classification system used in NWI mapping (Cowardin, 1979).

1.4 QUALIFICATIONS

Wetland and stream delineations were conducted under the direction and guidance of EDR Principal Ben Brazell. Mr. Brazell received a Bachelor of Science Degree in Natural Resources Ecosystem Assessment from North Carolina State University, and joined EDR in 2004. Since that time, Mr. Brazell has worked in the capacity of an Ecologist, Project Manager, Senior Project Manager, and Director of Environmental Services. Mr. Brazell has over 15 years' experience performing and/or supervising projects involving wetland and stream delineations, state and federal wetland and stream permitting, habitat and ecosystem analysis, and environmental impact assessments.

Multiple EDR staff were involved in the on-site delineations for the Facility, with Russell Farchione serving as the consistent presence. Mr. Farchione received a Bachelor of Science Degree in Biology from State University of New York at Geneseo, and joined EDR in 2015 as an Environmental Analyst. Since that time, Mr. Farchione has conducted numerous wetland and stream delineations, including detailed surveys for multiple utility-scale wind projects and high voltage transmission lines. His experience also includes ecological community surveys, invasive plant surveys, report writing, environmental impact analysis, and GIS data analysis.

2.0 REGULATORY AUTHORITIES AND PERMITS

2.1 WATERS OF THE UNITED STATES

In accordance with Section 404 of the Clean Water Act, the USACE has regulatory jurisdiction over Waters of the Unites States (WOUS). As defined by the USACE, WOUS includes all 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 criteria: a dominance of hydrophytic vegetation, hydric soils, and evidence of wetland hydrology during the growing season (Environmental Laboratory, 1987).

The jurisdictional status of all on-site waters can only be determined following an official jurisdictional determination provided by the USACE, which typically includes a field visit. 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 *Rapanos* and *Carabell* (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 all 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 in) these waters. There are no navigable waters mapped within the Study Area.

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 all state-protected wetlands to allow landowners and other interested parties a means of determining where state jurisdictional wetlands exist. To implement the policy established by this Act, regulations were promulgated by the state under 6 NYCRR Parts 663 and 664. Part 664 of the regulations designates wetlands into four class ratings, with Class I being the highest or best quality wetland and Class IV being the lowest. In general, wetlands regulated by the state are those 12.4 acres in size or larger. Smaller wetlands can also be regulated if they are considered of unusual local importance. A 100-foot adjacent area around the delineated boundary of any state-regulated wetland is also under NYSDEC jurisdiction. The location and approximate boundaries of wetlands regulated by the State of New York under Article 24 are indicated on NYS Freshwater Wetland Maps. An Article 24 permit is required from the NYSDEC for any disturbance to a state-protected wetland or 100-foot adjacent area, including removing vegetation. However, under Article 10 of the Public Service Law, this permitting authority has been delegated to theNew York State Board on Electric Generation Siting and the Environment (Siting Board).

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. The term “protected stream” means 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 a stream classified C(T) or higher. However, under Article 10, this permitting authority has been delegated to the New York State Department of Public Service (DPS).

3.0 PHYSICAL CHARACTERISTICS AND RESOURCES

3.1 PHYSIOGRAPHY AND SOILS

The Study Area is located in the northern portion of the glaciated Allegheny Plateau Physiographic Province of New York State. The area can generally be described as an elevated plateau or rolling hills, dissected by stream valleys, and dominated by a mix of woodlots and agriculture. The terrain and soil of the Facility area is a result of glaciation from the Wisconsinian Age, which has given the area smoothed and flattened hilltops and wide stream valleys (Bryce et al., 2010). Elevations within the Study Area range from approximately 1,460 feet above mean sea level (amsl) to approximately 2,145 amsl (Figure 4).

The Steuben County Soil Survey has mapped general soil associations and soil types within the county (NRCS, 2017). The soil survey indicates that 33 soil series are present within the Study Area (Figure 5). Of these, Fremont silt loam is the most dominant soil series, covering approximately 342 acres (29%) of the Study Area. Other prominent soil series include Mardin channery silt loam, Bath channery silt loam and Volusia channery silt loam. Soil drainage in the Study Area is variable, with approximately 45 percent of the mapped soils classified as somewhat poorly drained, 30 percent classified as well drained, 23 percent classified as moderately well drained, and the remaining 2 percent classified as either poorly drained or very poorly drained. Table 1 lists the soil map units within the Study Area and their characteristics. "Hydric" and "Potentially Hydric" designations are based on information obtained from the USDA Web Soil Survey (Soil Survey Staff, 2017). 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]	Acres Within Study Area
Aa	Alden silt loam	--	VPD	Yes	No	1.7
ARC	Arnot channery silt loam	2-20	SPD	No	No	39.6
BaB	Bath channery silt loam	3-12	WD	No	No	131.1
BaC	Bath channery silt loam	12-20	WD	No	No	18.7
BaD	Bath channery silt loam	20-30	WD	No	No	8.6
BBE	Bath soils, steep	--[4]	WD	No	No	3.8
Ch	Chenango channery silt loam, fan	--	WD	No	No	14.6
Ck	Chippewa channery silt loam	0-3	PD	Yes	No	3.8
FL	Fluvaquents and Ochrepts	--	PD	No	Yes	19.6
FrB	Fremont silt loam	2-8	SPD	No	Yes	342.3

Mapping Unit	Series	Slope (%)	Drainage[1]	Hydric[2]	Potentially Hydric[3]	Acres Within Study Area
HfB	Hornell-Fremont silt loams	1-6	SPD	No	Yes	7.7
HfC	Hornell-Fremont silt loams	6-12	SPD	No	Yes	4.0
HgD	Hornell and Fremont silt loams	12-20	SPD	No	Yes	4.0
HrB	Howard-Madrid complex, undulating	--	WD	No	No	13.8
HrC	Howard-Madrid complex, rolling	--	WD	No	No	8.8
HrD	Howard-Madrid complex	20-30	WD	No	No	17.4
HtE	Howard and Alton gravelly soils	30-45	WD	No	No	0.0
LoB	Lordstown channery silt loam	3-12	WD	No	No	42.1
LoC	Lordstown channery silt loam	12-20	WD	No	No	41.1
LRE	Lordstown-Arnot association, steep	--	WD	No	No	29.7
LRF	Lordstown-Arnot association, very steep	--	WD	No	No	16.1
MdB	Mardin channery silt loam	2-8	MWD	No	No	130.1
MdC	Mardin channery silt loam	8-15	MWD	No	No	104.4
MdD	Mardin channery silt loam	12-25	MWD	No	No	19.4
MdD3	Mardin channery silt loam, severely eroded	8-25	MWD	No	No	2.5
Mp	Middlebury silt loam	--	MWD	No	Yes	2.5
OC	Ochrepts and Orthents	--	MWD	No	No	10.5
Pa	Palms muck	--	VPD	Yes	No	0.9
TuB	Tuller channery silt loam	0-6	SPD	No	Yes	1.8
VoB	Volusia channery silt loam	3-8	SPD	No	Yes	17.7
VoC	Volusia channery silt loam	8-15	SPD	No	Yes	102.5
VoD	Volusia channery silt loam	15-25	SPD	No	Yes	7.3
Wn	Wayland soils complex, non-calcareous substratum, frequently flooded	0-3	PD	Yes	No	1.6

[1] Soil drainage is represented by the following abbreviations: “ED” = excessively drained, “SED” = somewhat excessively drained, "WD" = well drained, "MWD" = moderately well drained, "SPD" = somewhat poorly drained, “PD” = 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.
[4] “--" indicate no slope data is available on the USDA Web Soil Survey for the respective map unit.

3.2 HYDROLOGY

The majority of the Study Area is located in the Chemung watershed (USGS Hydrologic Unit 02050105), with the southern-most quarter of the Study Area occurring within the Tioga watershed (USGS Hydrologic Unit 02050104). Most of the surface hydrology in the Facility Area is generated by precipitation and surface water run-off from adjacent land. Total annual precipitation averages 36.54 inches in nearby Hornell, New York (NRCC, 2017).

Based on review of mapped wetlands and streams, aerial imagery, and site-specific field investigations, the largest surface water body within the Study Area is Neils Creek, which follows along the Study Area and State Route 21 (Figure 3, Sheets 3 and 4). Neils Creek is a Class C(TS) stream, with its headwaters associated with NYSDEC Wetland HK-

3, and flows south-southeast until its confluence with Castle Creek, approximately 3.25 miles east of the Study Area at the intersection of County Route 70 and County Route 6. Castle Creek then flows into the Cohocton River, which ultimately drains into the Chemung River, approximately 30 miles southeast of the Study Area. Surface water in the most southern section of the Study Area collects in a number of unnamed tributaries to Carrington Creek and Big Creek. The waters from Chemung and Tioga watersheds ultimately drain to Chemung River, which flows across the western portion of the Southern Tier of New York State, before joining the Susquehanna River and eventually emptying into Chesapeake Bay (NYSDEC, 2017).

3.3 FEDERAL AND STATE MAPPED WETLANDS AND STREAMS

National Wetland Inventory (NWI) mapping indicates the presence of 14 wetlands and 20 streams within the Study Area (Figure 6). The total acreage of NWI mapped wetlands and streams within the Study Area are 5.50 acres and 3.41 acres, respectively. NWI mapping categorizes wetlands based on their vegetative community. For NWI purposes, a single wetland with two community types is mapped as two different wetlands (USFWS, 2016). NWI mapping indicates that emergent wetlands are the dominant wetland community in the Study Area, totaling approximately 1.74 acres. Other NWI-mapped wetland communities include scrub-shrub wetlands (0.72 acre), forested wetlands (2.53 acres), and freshwater ponds (0.52 acre). NWI mapping also indicates the presence of 10 perennial streams (R5) are within the Study Area, totaling 1.98 acres, 3,121 linear feet, and the presence of 11 intermittent streams (R4) totaling 1.43 acres, 3,095 linear feet. As discussed in Section 4.0, field investigations indicate that numerous additional wetlands and streams likely to be under federal jurisdiction also occur within the Study Area.

Review of NYSDEC Freshwater Wetlands mapping indicates that there are two state-regulated wetlands that overlap the Study Area (Figure 6). One wetland is designated as Class II, while the other is a Class III wetland. Table 2 provides a summary of mapped State-regulated wetlands that occur within the Study Area. Please note, a site visit with staff from the Region 8 office of the NYSDEC was conducted to determine the extent of state jurisdiction, pursuant to Article 24 of the Environmental Conservation Law (See Section 5.0 for additional information).

Table 2. State-Regulated Wetlands Within the Study Area

Wetland	Class[1]	Total Size (Acres)	Size Within Study Area (Acres)[2]
HK-3	II	145.31	1.02
HK-8	III	17.80	0.15

[1] NYS classification system provides four separate classes that rank wetlands according to their ability to provide functions and values (Class I having the highest rank, descending through Class IV).
[2] Represents portion of wetland within the study area according to mapped boundaries from existing database.

NYSDEC stream mapping indicates that there are four NYSDEC protected streams that flow through the Study Area. Two of these streams are classified as A, one is classified as A(T) and one is classified as C(TS). These streams include Neils Creek, an unnamed tributary of Carrington Creek, and two unnamed tributaries of Seely Creek. However, specific delineations determined that one of the NYSDEC mapped protected streams (an unnamed tributary to Seely Creek, north of Canfield Road, does not actually extend into the Study Area. See Section 5.0 and Appendix E (NYSDEC Freshwater Wetlands Determination) for additional information. All other NYSDEC mapped streams within the Study Area are classified as Class C streams and are therefore not subject to State Protection of Waters regulations. Table 3 provides a summary of all State-mapped streams (protected and unprotected), and their linear distances, within the Study Area. Final jurisdictional status of these mapped streams is discussed in Section 5.0 and Appendix E.

Table 3. State-Mapped Streams Within the Study Area

Stream Name	NYSDEC Class	Linear Feet Within Study Area[3]
Seely Creek (trib)	A(T)	206
Neils Creek	C(TS)	205
Carrington Creek (trib)[1]	A	363
Seely Creek (trib)	A	528
Big Creek (trib)	C	258
Big Creek (trib)	C	154
Big Creek (trib)	C	42
Cohocton River (trib)	C	212
Cohocton River (trib)	C	349
Neils Creek (trib)	C	335
Neils Creek (trib)	C	60
Neils Creek (trib)	C	232
Neils Creek (trib)	C	120
Neils Creek (trib)	C	259
Neils Creek (trib)	C	396
Neils Creek (trib)	C	1723
Neils Creek (trib)	C	168
Neils Creek (trib)	C	247
Neils Creek (trib)	C	205
Neils Creek (trib)	C	237
Neils Creek (trib)	C	224
Neils Creek (trib)	C	204
Neils Creek (trib)[2]	C	297
Reynolds Creek (trib)[2]	C	250
Reynolds Creek (trib)[2]	C	1315
Reynolds Creek (trib)[2]	C	77

[1]Wetland and stream field investigations determined that this stream and associated wetland had been altered or rerouted resulting in no streams at this location.
[2]NYSDEC stream classification mapping shows straight lines crossing over these areas. Upon wetland and stream field investigations, it was determined that there are no wetlands or streams in these locations.
[3] Represents portion of stream within the study area according to mapping from existing database.

4.0 WETLAND AND STREAM IDENTIFICATION

4.1 METHODOLOGY

An initial desktop analysis of the Study Area was conducted by EDR prior to performing on-site wetland delineations. The desktop analysis was performed using NYSDEC Freshwater Wetland mapping, NWI maps, USGS topographic mapping, and recent aerial photography. From these data sources, EDR identified areas likely to contain wetland and stream resources within the Study Area.

Following the desktop analysis, a reconnaissance level investigation of the preliminary Facility layout was conducted in June 2016. The approximate locations of wetlands and potential wetland areas were identified and used for planning/routing purposes. The Facility site was revisited during the months of October and November 2016 and April, May, June and September 2017. Formal wetland and stream delineations were conducted for the entire Study Area.

The determination of wetland boundaries was made by EDR personnel in accordance with the three-parameter methodology described in the *USACE Wetland Delineation Manual* (hereafter referred to as the 1987 Manual) (Environmental Laboratory, 1987). Determination of wetland boundaries was also guided by the *Interim Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Northcentral and Northeastern Region* (hereafter referred to as the Regional Supplement) (USACE, 2012). Attention was also given to the identification of potential hydrologic connections between wetland areas that could influence their jurisdictional status. Delineated wetland boundaries were marked in the field with sequentially numbered pink surveyor's flagging and subsequently recorded using a Trimble Geo Explorer 6000 Series GPS unit, with reported sub-meter accuracy.

Data were collected from one or more sample plots in each delineated wetland (depending on the size and diversity of ecological communities of the delineated area), and recorded on USACE Routine Wetland Determination forms (Appendix B). Data collected for each of the wetlands included dominant vegetation, hydrology indicators, and soil characteristics. Data collected for streams included information on channel width (mean high water mark), water depth, substrate material, bank condition and gradient.

The vegetative data collection process focused on 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 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. Dominant species for each stratum in the plant community were identified for all delineated wetlands on the site. The dominant species from each category are defined as those plants with the highest ranking which, when cumulatively totaled, exceeds 50 percent of the total dominance measure for that category, plus any additional plant species comprising 20 percent or more of the total dominance measure for the category. The species were rank ordered for each category by decreasing value of dominance.

Soils data at each sampling location were collected from a soil pit dug with a tiling spade. Information concerning soil name, drainage classification, texture, matrix and redoximorphic feature color was obtained for each delineated wetland by reviewing the Steuben County Soil Survey and through field sampling. Soil colors were determined using Munsell Soil Charts (Munsell Color [Firm], 2009). These data were used to determine whether the soils displayed hydric characteristics. Hydric soils are those that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil layer. Hydric soils are poorly drained, and their presence is indicative of the likely occurrence of wetlands (Environmental Laboratory, 1987).

The Regional Supplement lists the following indicators as evidence of wetland hydrology (in order of decreasing reliability): (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. Hydrologic characteristics (inundation and soil saturation) were visually assessed to a depth of 12 inches. The hydrology indicators described above are considered "primary indicators," and any one of these indicators is sufficient evidence that wetland hydrology is present. In addition, “secondary indicators” used by EDR personnel included: (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) saturation visible on aerial imagery, (D2) geomorphic position, (D3) shallow aquitard, (D4) microtopographic relief, and (D5) fac-neutral test. Any two of these also indicate the presence of wetland hydrology. Wetland hydrology, when combined with a dominant hydrophytic plant community and hydric soils, indicate the presence of a wetland.

Photographs were taken of all wetlands delineated within the Study Area. Photographs representative of the delineated wetlands are included in Appendix C.

4.2 RESULTS

EDR delineated 45 wetlands within the Study Area, totaling approximately 11.61 acres. In addition, EDR delineated 33 streams, totaling approximately 13,240 linear feet (2.51 miles). Please note that in most cases delineated wetlands and streams extend beyond the boundaries of the Study Area, and are thus larger than the acreage documented within the Study Area. Information pertaining to individual delineated wetlands and streams is summarized in Table 4 below. Wetlands and streams were categorized as one or more of the following community types: emergent wetland (PEM), scrub-shrub wetland (PSS), forested wetland (PFO), open water (OW), riverine upper perennial (R3), riverine intermittent (R4) and riverine ephemeral (R6). All delineated wetlands and streams within the Study Area are depicted in Figure 7, and described in Section 4.2.1, below.

Table 4. Delineated Wetlands and Streams

Delineation ID[1]	Latitude of Centroid	Longitude of Centroid	Wetland Present	Wetland Type Acreage Within Wetland Study Area[2]				Total Wetland Acreage Within Wetland Study Area	Stream Present	Stream Type[3]	Linear Feet of Stream Within Study Area[4]	NYSDEC Stream Class[5]	Stream Name	Federal Jurisdiction[6]	State Jurisdiction[7]	Appendix A: Figure 7 - Sheet #
				PFO	PSS	PEM	POW									
A	42.506762	-77.547893	Yes	--	--	0.03	--	0.03	--	--	--	--	--	Yes	--	1
B	42.496529	-77.526219	Yes	--	2.03	0.15	--	2.18	Yes	R3	1563	C	Reynolds Creek (trib)	Yes	Yes	3, 4, 5
C	42.498671	-77.525095	Yes	--	0.69	0.52	--	1.21	--	--	--	--	--	Yes	--	2, 3
E	42.499895	-77.523429	Yes	--	--	0.12	--	0.12	Yes	R4	200	--	Reynolds Creek (trib)	Yes	Yes	2, 3
G	42.472343	-77.541917	Yes	--	0.64		--	0.64	--	--	--	--	--	Yes	--	7
H	42.466013	-77.542417	Yes	--	--	0.004	--	0.004	--	--	--	--	--	Yes	--	8
I	42.464505	-77.543545	Yes	0.04	--	--	--	0.04	--	--	--	--	--	Yes	--	8, 9
J	42.463454	-77.545192	Yes	0.08	--	--	--	0.08	--	--	--	--	--	Yes	--	9
M	42.427289	-77.601661	--	--	--	--	--	--	Yes	R3, R4	748	A	Seely Creek (trib)	Yes	Yes	34, 35
R	42.443418	-77.585534	Yes	--	0.25	--	--	0.25	Yes	R4	135	C	Cohocton River (trib)	Yes	--	26
S	42.442823	-77.593477	Yes	0.18	--	--	--	0.18	--	--	--	--	--	Yes	--	28
U	42.452972	-77.575179	--	--	--	--	--	--	Yes	R3	1800	C	Neils Creek (trib)	Yes	Yes	21, 22, 23
V	42.447517	-77.58063	Yes	--	0.12	0.11	--	0.23	--	--	--	--	--	Yes	--	24
W	42.45552	-77.533909	Yes	--	--	0.03	--	0.03	Yes	R4	306	C	Cohocton River (trib)	Yes	Yes	11
X	42.450758	-77.549789	Yes	--	--	0.02	--	0.02	--	--	--	--	--	Yes	--	17
Y	42.45183	-77.554148	Yes	--	--	0.79	--	0.79	--	--	--	--	--	Yes	--	16
AA	42.450783	-77.548375	--	--	--	--	--	--	Yes	R4	210	C	Neils Creek (trib)	Yes	--	17
CC	42.391091	-77.583763	Yes	--	--	--	0.09	0.09	--	--	--	--	--	Yes	--	47
EE	42.392529	-77.58589	--	--	--	--	--	--	Yes	R3	413	C	Big Creek (trib)	Yes	--	47, 48
GG	42.386382	-77.580263	Yes	--	--	0.007	--	0.007	--	--	--	--	--	Yes	--	52
HH	42.381823	-77.581178	Yes	--	--	0.02	--	0.02	Yes	R4	200	--	Big Creek (trib)	Yes	--	53
II	42.39418	-77.565648	Yes	--	--	0.06	--	0.06	Yes	R4	49	--	Turtle Creek (trib)	Yes	--	45

Delineation ID[1]	Latitude of Centroid	Longitude of Centroid	Wetland Present	Wetland Type Acreage Within Wetland Study Area[2]				Total Wetland Acreage Within Wetland Study Area	Stream Present	Stream Type[3]	Linear Feet of Stream Within Study Area[4]	NYSDEC Stream Class[5]	Stream Name	Federal Jurisdiction[6]	State Jurisdiction[7]	Appendix A: Figure 7 - Sheet #
				PFO	PSS	PEM	POW									
JJ	42.423386	-77.587996	Yes	--	--	0.05	--	0.05	--	--	--	--	--	Yes	--	37
LL	42.417528	-77.575962	--	--	--	--	--	--	Yes	R4	300	C	Neils Creek (trib)	Yes	--	38
PP	42.439532	-77.572681	Yes	--	--	--	0.009	0.009	Yes	R4	50	C	Neils Creek (trib)	Yes	--	31
RR	42.439511	-77.581769	Yes	--	--	0.05	--	0.05	--	--	--	--	--	Yes	--	30
SS	42.437544	-77.588982	--	--	--	--	--	--	Yes	R3	248	C	Neils Creek (trib)	Yes	--	29
TT	42.443162	-77.538673	--	--	--	--	--	--	Yes	R4	450	C	Neils Creek (trib)	Yes	--	18
WW	42.393721	-77.561912	Yes	0.56	--	--	--	0.56	--	--	--	--	--	Yes	--	45, 46
XX	42.406111	-77.578751	Yes	0.77	--	0.10	--	0.87	Yes	R4	1702	--	Carrington Creek (trib)	Yes	--	41, 42, 43
YY	42.407829	-77.581243	Yes	--	--	0.0007	--	0.0007	--	--	--	--	--	Yes	--	41
ZZ	42.408385	-77.581299	Yes	--	--	0.01	--	0.01	Yes	R4	202	--	Carrington Creek (trib)	Yes	--	41, 42
3B	42.406927	-77.580088	Yes	0.10	--	v	--	0.10	--	--	--	--	--	Yes	--	41, 42
3C	42.427718	-77.600554	Yes	--	--	--	0.09	0.09	Yes	R6	403	--	Carrington Creek (trib)	Yes	Yes	33, 34, 35
3D	42.410234	-77.577754	Yes	--	--	0.05		0.05	Yes	R6	144	--	Carrington Creek (trib)	Yes	--	40
3E	42.416975	-77.585898	Yes	--	0.04	--	--	0.04	Yes	R4	369	--	Carrington Creek (trib)	Yes	--	39
3G	42.429	-77.597617	--	--	--	--	--	--	Yes	R4	393	--	Carrington Creek (trib)	Yes	--	33
3H	42.428459	-77.598716	Yes	0.13	--	--	--	0.13	--	--	--	--	--	Yes	--	33
3I	42.433401	-77.587791	--	--	--	--	--	--	Yes	R3	245	C	Neils Creek (trib)	Yes	--	32
3J	42.433425	-77.588205	Yes	--	--	0.10	--	0.10	Yes	R6	42	--	--	Yes	--	32
3L	42.443256	-77.590199	Yes	--	--	0.03	--	0.03	--	--	--	--	--	Yes	--	27
3M	42.442177	-77.59221	Yes	--	--	--	0.01	0.01	--	--	--	--	--	Yes	--	28
3U	42.392069	-77.593719	Yes	0.02	--	--	--	0.02	Yes	R4	230	C	Big Creek (trib)	Yes	--	50
3W	42.39362	-77.587312	--	--	--	--	--	--	Yes	R4	58	--	Big Creek (trib)	Yes	--	48

Delineation ID[1]	Latitude of Centroid	Longitude of Centroid	Wetland Present	Wetland Type Acreage Within Wetland Study Area[2]				Total Wetland Acreage Within Wetland Study Area	Stream Present	Stream Type[3]	Linear Feet of Stream Within Study Area[4]	NYSDEC Stream Class[5]	Stream Name	Federal Jurisdiction[6]	State Jurisdiction[7]	Appendix A: Figure 7 - Sheet #
				PFO	PSS	PEM	POW									
3X	42.394814	-77.590427	Yes	0.11	--	--	--	0.11	--	--	--	--	--	Yes	--	49
3Z	42.453942	-77.569514	Yes	--	0.17	0.58	--	0.75	Yes	R3	281	C(TS)	Neils Creek	Yes	Yes	20, 21
4A	42.493216	-77.540484	--	--	--	--	--	--	Yes	R4	209	--	Reynolds Creek (trib)	Yes	--	6
4C	42.461225	-77.553371	--	--	--	--	--	--	Yes	R4	217	C	Neils Creek (trib)	Yes	--	12
4D	42.452463	-77.557289	Yes	--	0.01	--	--	0.01	Yes	R4	785	C	Neils Creek (trib)	Yes	--	15, 16
4E	42.456359	-77.562051	Yes	0.45	0.14	--	--	0.59	--	--	--	--	--	Yes	--	13, 14
4F	42.454574	-77.567668	--	--	--	--	--	--	Yes	R4	311	--	Neils Creek (trib)	Yes	--	20
4H	42.454213	-77.557965	Yes	--	0.10	--	--	0.10	--	--	--	--	--	Yes	--	14, 15
4L	42.440415	-77.533463	Yes	0.11	--	0.14	--	0.25	Yes	R3	242	C	Neils Creek (trib)	Yes	--	19
4M	42.401457	-77.566695	--	--	--	--	--	--	Yes	R4	311	--	Neils Creek (trib)	Yes	--	44
4N	42.44432	-77.58068	Yes	--	--	0.03	--	0.03	--	--	--	--	--	Yes	--	25
4O	42.454743	-77.559796	Yes	--	--	0.02	--	0.02	--	--	--	--	--	Yes	--	14
4P	42.390872	-77.591294	Yes	--	--	0.17	--	0.17	--	--	--	--	--	Yes	--	51
4Q	42.39111	-77.589745	Yes	--	--	0.03	--	0.03	--	--	--	--	--	Yes	--	51
4R	42.45952	-77.525833	Yes	0.05	0.19	0.09	--	0.33	Yes	R4	214	C	Cohocton River (trib)	Yes	Yes	10
4S	42.424009	-77.596118	Yes	1.03	--	0.09	--	1.12	Yes	R3	210	A(T)	Seely Creek (trib)	Yes	Yes	36
Total Wetlands: 45								Total Streams: 33								

[1]Field ID assigned by EDR. Several 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, and PFO = Palustrine Forested.
[3] Stream types are based upon the Cowardin et al. (1979) classification system: R3 = Riverine Upper Perennial, R4 = Riverine Intermittent, R6 = Riverine Ephemeral.
[3]Based on visual observation of hydrologic connectivity in the field and review of available spatial data. Final jurisdictional determination to be made by USACE.
[4]Based on Freshwater Wetlands Determination issued by NYSDEC Region 8 staff (see Appendix E).

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4.2.1 Wetlands

Descriptions of each wetland community type delineated within the Study Area are presented below. Many wetlands identified contained more than one community type. A complete list of the community types for each wetland is provided in Table 4 above.

Forested wetland (PFO) – Of the delineated wetlands within the Study Area, 13 contained forested wetland communities. These communities are dominated by trees that are 20 feet or taller, but also include an understory of shrubs and herbaceous species. Forest wetlands in the Study Area are dominated by red maple (*Acer rubrum*) and green ash (*Fraxinus pennsylvanica*) in the overstory, along with American hornbeam (*Carpinus caroliniana*), and occasional yellow birch (*Betula alleghaniensis*). Understory vegetation includes saplings of the above-mentioned species and occasionally shrub species such as spice bush (*Lindera benzoin*) and Morrow's honeysuckle (*Lonicera morrowii*). Herbaceous species in the forested wetlands include sedges (*Carex* spp.), sensitive fern (*Onoclea sensibilis*), horsetail species (*Equisetum spp*.), and spotted jewelweed (*Impatiens capensis*). Evidence of wetland hydrology observed in these wetlands at the time of delineation included soil saturation, oxidized rhizospheres on living roots, geomorphic position, drainage patterns, and sparsely vegetated concave surfaces (See Photos 1 - 10 in Appendix C).

Scrub-shrub wetlands (PSS) – 11 wetland features delineated within the Study Area contained scrub-shrub vegetation. Scrub-shrub wetlands are characterized by dense stands of shrub species and small trees less than 20 feet tall. Plant species typically encountered in the scrub-shrub wetlands delineated within the Study Area include willows (*Salix spp*.), speckled alder (*Alnus incana*), meadowsweet (*Spiraea alba*) silky dogwood (*Cornus amomum*), red osier dogwood (*Cornus sericea*), and gray dogwood (*Cornus racemosa*). Herbaceous vegetation in these areas includes sensitive fern, common boneset (*Eupatorium perfoliatum*), sedges, and New England aster (*Symphyotrichum novae-angliae*). Evidence of wetland hydrology observed in scrub-shrub wetlands at the time of delineation consisted of indicators such as hydrogen sulfide odors, water-stained leaves, and sparsely vegetated concave surfaces. Hydric soil indicators included depleted soils with low chroma (2 or less) and prominent redox concentrations. (see Photos 11 and 12 in Appendix C).

Emergent wetlands (PEM) – This community type characterizes the majority of the wetlands found within the Study Area. A total of 28 delineated areas contained emergent wetland communities. These wetland areas are dominated by herbaceous vegetation including common rush (*Juncus effusus*), spotted jewelweed, rice cutgrass (*Leersia oryzoides*), fringed willow herb (*Epilobium ciliatum*), and numerous sedge species. Evidence of wetland soils included low chroma matrix with dark brown to black colors (10YR 2/2) and high chroma mottles (7.5YR 4/6) throughout the matrices with prominent redox concentrations. Wetland hydrology indicators found within these areas at the time of delineation included standing surface water, high water table, soil saturation, drainage patterns, oxidized rhizospheres on living roots and the presence of reduced iron. (see Photos 13 – 24 in Appendix C).

Open Water (OW) – four open water areas were delineated in the Study Area. Most of these open water features were either small farm ponds or man-made impoundments typically found in farm settings, adjacent to housed and barns or within wetlands. These ponds occurred in a variety of settings, including open fields, scrub-shrub, and forested environments, and typically have well-defined banks and a fringe of emergent wetland vegetation. Although not verified, water depths of such ponds are typically in excess of 3 feet deep (see Photos 29-32 in Appendix C).

Streams – A total of 33 streams were delineated within the Study Area. These streams are mostly located within forests and hedgerows, and generally have a gentle to moderate gradient (0-5%). The majority of the delineated streams appeared to be intermittent channels. Most of the streams are less than 10 feet wide with variable substrates and vegetative cover characteristics. The delineated stream channels are generally characterized by rocky substrate and well-defined, abrupt steep banks, and flow during the wet season (winter to spring). With the exception of Neils Creek, water depths within channels with stream flow averaged 2-12 inches (see Photos 33-40 in Appendix C).

4.2.2 Wetland Functions and Values

A functions and values assessment was conducted following the general methodology described in the *Wetlands Functions and Values: Descriptive Approach* described in the September 1999 supplement to *The Highway Methodology Workbook* (Supplement) by the New England Division of the USACE (USACE, 1995).

Wetland functions are ecosystem properties that result from the biologic, geologic, hydrologic, chemical and/or physical processes that take place within a wetland. These functions include:

1. Groundwater Recharge/Discharge
2. Floodflow Alteration
3. Fish and Shellfish Habitat
4. Sediment/Pollutant Retention
5. Nutrient Removal/Retention/Transformation
6. Production (Nutrient) Export
7. Sediment/Shoreline Stabilization
8. Wildlife Habitat

Wetland values are the perceived benefits for society that can be derived from the ecosystem functions and/or other characteristics of a wetland. Values attributed to wetlands in the Supplement include the following:

1. Recreation
2. Education/Scientific Value
3. Uniqueness/Heritage
4. Visual Quality/Aesthetics
5. Threatened or Endangered Species Habitat

Wetlands functions and values recognized under Article 24 of the Environmental Conservation Law and Regulations are similar to those described in the Supplement, and include:

1. Flood and storm control by the hydrologic absorption and storage capacity of wetlands;
2. Breeding, nesting and feeding habitat for many forms of wildlife, including migratory wildfowl and rare species such as the bald eagle and osprey;
3. Protection of subsurface water resources and recharge of ground water supplies;
4. Recreation by providing areas for hunting, fishing, boating, hiking, bird watching, photography, camping and other uses;
5. Pollution treatment by serving as biological and chemical oxidation basins;
6. Erosion control by serving as filtering basins, absorbing silt and organic matter and protecting channels and harbors;
7. Education and scientific research by providing outdoor bio-physical laboratories, living classrooms and training/education resources;
8. Open space and aesthetic appreciation by providing often the only remaining open areas along crowded river fronts and coastal regions;
9. Sources of nutrients in freshwater food cycles and nursery grounds and sanctuaries for fish.

Based on the "Considerations/Qualifiers" outlined in the Supplement, EDR developed a spreadsheet that includes several basic considerations that help identify the primary functions and values provided by wetlands. These considerations include observed vegetation conditions, hydrologic conditions, size, adjacent area conditions, and the availability of public access. Specific conditions within each of these consideration areas were also defined to allow each wetland's functions and values to be evaluated based on data collected during field delineation. A total of 46 wetlands delineated within the Study Area were entered into the spreadsheet and wetland characteristics identified for each. Data regarding these wetland characteristics and associated functions and values were collected during the months of October and November 2016 and April, May, June, and September 2017. Based on the entered data, the

primary functions and values provided by each wetland were determined. Results of this evaluation are presented in Appendix D, and summarized below.

The functions and values assessment indicates that most of the delineated wetlands within the Study Area provide some level of wildlife habitat, groundwater recharge and water quality improvement functions. In most cases these functions are limited by the small size of many of the wetlands. However, six of these wetlands were determined to provide a substantial wildlife habitat function because they are part of sizeable wetland complexes, typically including a variety of wetland covertypes (including forested wetland), have little or no invasive species present, and have forested adjacent areas. The combination of these qualities provides habitat for a diversity of wildlife species. A total of 40 wetlands were noted as having standing water and/or have enhanced water quality and groundwater recharge functions. Lacking the other conditions described above, most of these wetlands were determined to provide wildlife habitat for a more limited number of species. Of the wetlands with standing water, only one wetland (Wetland 3H) appeared to have characteristics that are indicative of a seasonal water body, or vernal pool. These characteristics are wetlands that are located in a woodland/forested community, contain 4 inches or more of standing water during the wet season (winter to spring), and have hydrology characteristics such as water stained leaves and/or sparsely vegetated concave surface.

Seven wetlands within the Study Area that are part of sizeable wetland complexes, contain dense vegetation, show evidence of inundation, or border a perennial stream, provide a production export function. Such wetlands have a higher productivity levels and have the potential to yield resources that can be consumed by downstream organisms.

Fiftee delineated wetlands are associated with perennial or intermittent streams. Those which contain dense vegetation and show evidence of inundation or a variable water level throughout the year were considered to provide an enhanced floodflow alteration function. A combination of these characteristics suggest the ability to slow or disperse waters from flooding events and reduce the potential for damage to lands downstream. Wetlands that contained dense herbaceous vegetation and are bordered by a perennial or intermittent stream were also determined to provide shoreline stabilization functions. Dense herbaceous vegetation surrounding a watercourse serves to stabilize banks and act as a buffer against the erosional forces of flood events. Eight of the delineated wetlands were determined to contain shoreline stabilization characteristics. Three wetlands associated with perennial streams were also determined to provide potential fish habitat.

Ten wetlands which provide floodflow attenuation and also contain seasonal pools, standing water, or dense vegetation, also have the potential to provide a substantial water quality enhancement function. Dense vegetation aids in filtering out sediment and the uptake of nutrients while standing or slow moving water in seasonal pools and inundated areas allow for sediment and pollutants to settle out of the water column or be adsorbed. Sediment/pollutant retention was also considered an important function when wetlands were in close proximity to roadways or other development areas.

A total of 22 wetlands are adjacent to active or semi-active agricultural areas. A majority of these wetlands contained dense herbaceous vegetation, and several also border watercourses or contain seasonal pools or standing water. These areas are likely to play a role in water quality improvement by adsorbing nutrients from agricultural run-off and preventing excess nutrients from affecting downstream watercourses.

Due to the private ownership of all properties within the Study Area, none of the delineated wetlands provide any substantial social values such as recreation, education/scientific value, or visual/aesthetic value for the general public. Uniqueness/heritage value is usually applied to wetlands which provide a special value in the context of the overall landscape, contain cultural features, or represent a rare wetland or habitat type within the local area. None of the delineated wetlands within the Study Area were noted as having any unique or rare characteristics that might be considered for this value.

Additionally, habitat for known endangered or threatened species are generally not present within the delineated wetland features. Other than providing potential summer roosting habitat for northern long-eared bat (*Myotis septentrionalis*) and potential nesting habitat for the bald eagle (*Haliaeetus leucocephalus*), none of the wetlands within the Study Area are considered likely to provide substantial habitat opportunities for listed threatened and endangered species.

5.0 CONCLUSIONS

EDR delineated a total of 45 wetlands within the Study Area. These wetlands were identified based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology, and total approximately 11.61 acres. The delineated areas include ponds, emergent, scrub-shrub, and forested wetland communities. EDR also delineated 34 streams within the Study Area. The delineated streams include intermittent, perennial and ephemeral channels. A total of approximately 13,240 linear feet (2.51 miles) of stream channels were delineated within the Study Area. The primary functions provided by wetlands and streams within the Study Area include water quality improvement, wildlife habitat, ground water recharge/discharge, and floodflow alteration.

EDR analysis suggests that all 46 delineated wetlands and 34 delineated streams are likely to be considered jurisdictional by the USACE under Section 404 of the Clean Water Act due to hydrological connections with WOUS. However, final determination of jurisdictional status must be made by the USACE.

A site visit with staff from the Region 8 office of the NYSDEC was conducted on August 30, 2017 to review delineated wetland and stream boundaries and determine the extent of state jurisdiction pursuant to Article 15 and Article 24 of the Environmental Conservation Law. Based on the on-site jurisdictional determination, NYSDEC subsequently issued their Freshwater Wetlands Determination, which identifies NYSDEC jurisdiction of wetlands and streams (See Appendix E). This determination indicates that wetland HK-3 (delineated wetlands 3Z) is regulated under Article 24 of the Environmental Conservation Law. Please note that this determination also indicates that the Facility collection line crosses a portion of wetland HK-8 at the intersection of State Route 21 and Conderman Road; however, subsequent to the August 30, 2017 site visit this portion of the collection line was re-routed and no longer crosses this wetland.

In addition, NYSDEC determined eight streams are regulated under Article 15 of the Environmental Conservation Law.

Table 5. NYSDEC Jurisdictional Status of Delineated Wetlands and Streams

Delineation ID	Delineation Acreage[1]	Delineation Linear Feet	NYSDEC Jurisdiction	Currently Mapped NYSDEC Wetland	Currently Mapped NYSDEC Stream Classification	Stream Name
B	--	1563	Yes	--	C	Reynolds Creek
E	--	200	Yes	--	C	Tributary of Reynolds Creek
M	--	748	Yes	--	A	Tributary of Seely Creek
U	--	1800	Yes	--	C	Tributary of Neils Creek
W	--	306	Yes	--	C	Tributary of Cohocton River
3C	--	403	Yes	--	A	Tributary of Seely Creek
3Z	1.33	281	Yes	Yes (HK-3)	C(TS)	Neils Creek
4R	--	214	Yes	--	C	Tributary of Cohocton River
4S	--	210	Yes	--	A (T)	Tributary of Seeley Creek

[1]Only represents total acreage of delineated areas and not the extent of entire wetland outside of the wetland study area.

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