Wetland and Stream Delineation Report Addendum

Heritage Wind Project Town of Barre Orleans County, New York

Prepared by:



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1.0 INTRODUCTION

In February 2020, Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) prepared a Wetland Delineation Report for the proposed Heritage Wind Project (the Facility) in Orleans County, New York. The report was submitted to the New York State Department of Public Service (DPS) as a part of Exhibit 22 of the Application for a Certificate of Environmental Compatibility and Public Need, in accordance with Article 10 of the Public Service Law (Article 10 Application) on March 13, 2020. The report addressed potentially jurisdictional wetlands that were formally delineated within 500 feet of areas to be potentially disturbed by construction of the Facility.

This report addendum addresses proposed updates to the design of the Facility – namely the relocation of the laydown yard (see Figure 1)¹. Information provided herein is meant to serve as an addendum to the previously submitted February 2020 Wetland Delineation Report.

EDR completed a desktop review of National Wetland Inventory (NWI) and New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetlands mapping, and previously field delineated wetlands within 100 feet of the proposed laydown yard (100-foot Study Area) in July 2020 using the methodology described in Section 4.1 of the February 2020 Wetland Delineation Report².

2.0 DESKTOP REVIEW

Based on the desktop analysis, NWI mapping indicated that there is one freshwater forested/shrub wetland within the 100-foot Study Area and which also extends beyond the Study Area buffer, totaling approximately 1.5 acres (Figure 2). NYSDEC Freshwater Wetlands mapping indicated that there are no State-regulated wetlands, and no NYSDEC-mapped streams or wetlands within the 100-foot Study Area. The nearest NYSDEC-mapped wetland (Wetland AL-3) is located approximately 400 feet west of the laydown yard.

¹ Additional changes to the Facility layout include the removal of an alternate collection line and access road. These changes did not result in the need for additional wetland delineations and, as such, are not discussed in this addendum.

² Since the filing of the Article 10 Application, the New York State Board on Electric Generation Siting and the Environment (Siting Board) issued a Memorandum of Resolution that reduced the required area for wetlands mapping from within 500 feet of disturbed areas to 100 feet.

3.0 FIELD DELINEATION

EDR conducted a field delineation on July 14, 2020 using the methodology described in Section 4.1 of the February 2020 Wetland Delineation Report. EDR wetland staff delineated one wetland within the 100-foot Study Area, totaling approximately 1.4 acres in total area (see Table 1 and Figure 3). The wetland extends beyond the boundary of the 100-foot Study Area and is larger than the acreage documented within Table 1.

Table 1. Delineated Wetlands

Wetland Delineation ID ¹	Wetland Type ²	Wetland Acreage within Study Area	Stream(s) Present	Latitude of Centroid	Longitude of Centroid	Anticipated Federal Jurisdiction	Anticipated State Jurisdiction
001	PFO	1.4	No	43.1561	-78.1984	Yes	Yes

¹ Delineation ID assigned by EDR.

According to field observations, Wetland 001 is a palustrine forested (PFO) wetland dominated by green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), and elm (*Ulmus sp.*). Shrub vegetation included saplings of the above-mentioned species and grey dogwood (*Cornus racemose*). Herbaceous species included moneywort (*Lysimachia nummularia*) and sweet flag (*Acorus calamus*). Evidence of wetland hydrology observed in the wetland at the time of delineation included oxidized rhizospheres, and hydric soil indicators included redox dark surface (F6) and depleted matrix (F3). Within the 100-foot Study Area, the wetland was approximately 1.4 acres in size. However, the wetland extends beyond the borders of the 100-foot Study Area and may be hydrologically connected to NYSDEC-mapped wetland AL-3.

Based on the wetland functions and values assessment description and using the methodology detailed in the February 2020 Wetland Delineation Report, Wetland 001 was determined to have the following values: groundwater recharge/discharge, nutrient removal/retention/transformation, wildlife habitat, and provides floodflow alteration.

4.0 CONCLUSIONS

EDR's analysis suggests that the Wetland 001 within the Study Area is likely to be considered jurisdictional by the USACE under Section 404 of the Clean Water Act due to hydrological connections with Waters of the U.S. (WOUS). The wetland may also fall under State jurisdiction based on its close proximity and/or hydrologic connection to NYSDEC-mapped wetland, AL-3. Final determinations of jurisdictional wetlands will be made through consultation with the USACE and NYSDEC.

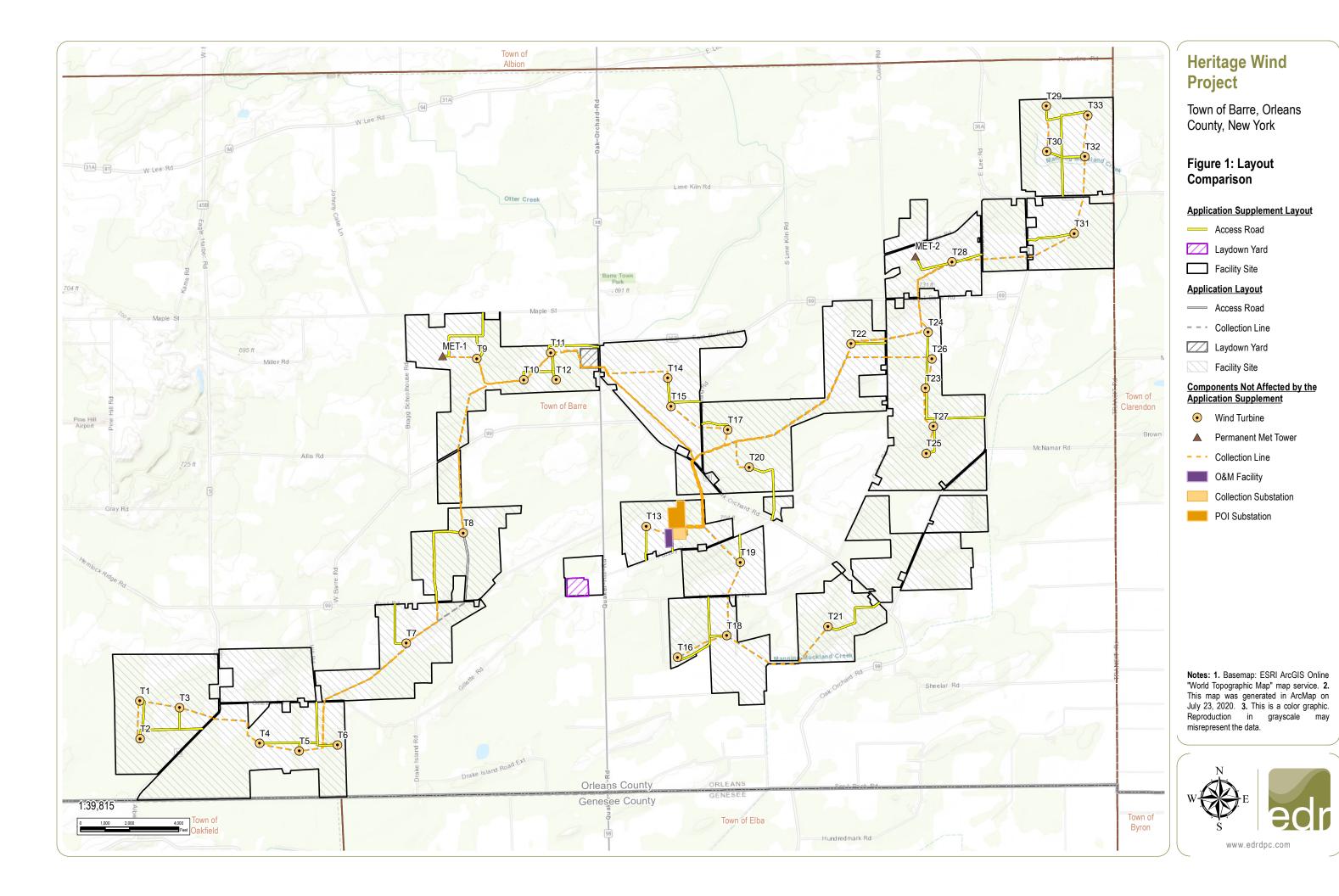
² Wetland type is based upon the Cowardin et al., (1979) classification system: PFO = Palustrine Forested.

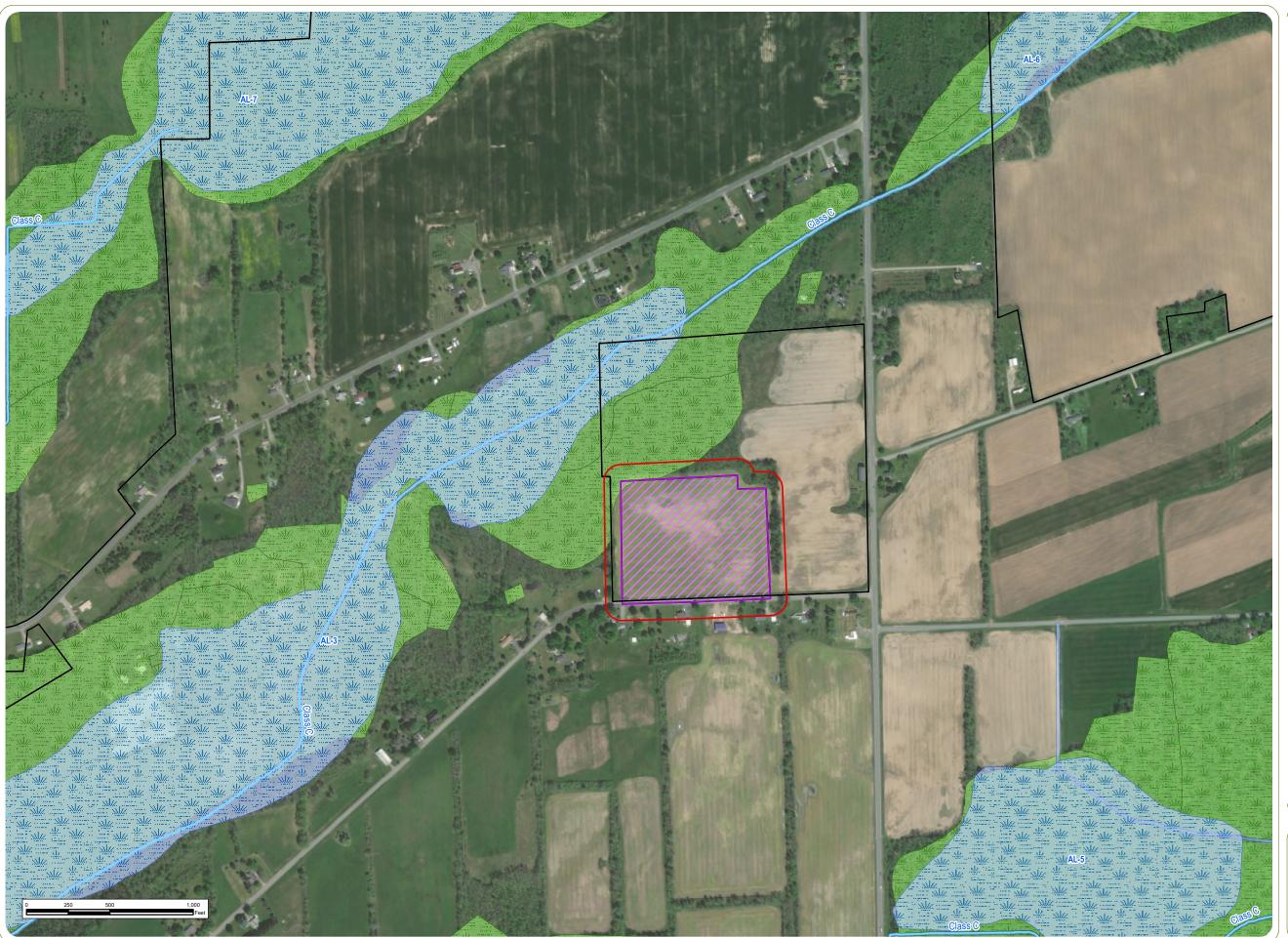
5.0 REFERENCES

Cowardin, L.M., V. Carter, F.C. Goblet and E.T. LaRoae. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, OBS-79/31, Washington, D.C. Available at: https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf (Accessed November 2019).

Appendix A

Figures





Heritage Wind Project

Town of Barre, Orleans County, New York

Figure 2: Mapped Wetlands and Streams

Laydown Yard

Facility Site

100-foot Study Area

NYSDEC Stream

Class A, B, C(TS), or C(T)

--- Class C or D

NYSDEC Mapped Wetland

NWI Palustrine Wetland

NWI Riverine Wetland/Water

Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on July 23, 2020. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data. 4. This figure depicts preliminary turbine locations, which are subject to change.





Heritage Wind Project

Town of Barre, Orleans County, New York

Figure 3: Delineated Wetlands and Streams

- Delineation Flagging
- ⊕ Data Sampling Point
- Wetland Continues
 - Delineated Wetland
- Laydown Yard
- Facility Site
- 100-foot Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on July 23, 2020. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data. 4. This figure depicts preliminary turbine locations, which are subject to change.



Appendix B

Wetland Data Form

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Heritage Wind	City/County: Orleans County Sampling Date: 07/14/2020				
Applicant/Owner: Heritage Wind, LLC (Apex Clean Energy)	State: NY Sampling Point: 001-1U				
Investigator(s): JM	Section, Township, Range: Town of Barre				
Landform (hillside, terrace, etc.): Flat Local	relief (concave, convex, none): None Slope %: 0-5				
Subregion (LRR or MLRA): LRR L, MLRA 101 Lat: 43.202509	Long: -78.120064 Datum: WGS84				
Soil Map Unit Name: Churchville silt loam, 0 to 2 percent slopes	NWI classification:				
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes X No (If no, explain in Remarks.)				
Are Vegetation, Soil, or Hydrologysignificantly distur					
Are Vegetation, Soil, or Hydrologynaturally problems	atic? (If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sam	npling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present? Yes No X Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes No X	Is the Sampled Area within a Wetland? Yes No _X If yes, optional Wetland Site ID:				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1) Water-Stained Leaves (High Water Table (A2) Aquatic Fauna (B13)	(B9) Drainage Patterns (B10) Moss Trim Lines (B16)				
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor					
Sediment Deposits (B2) Oxidized Rhizospheres					
Drift Deposits (B3) Presence of Reduced Ir					
Algal Mat or Crust (B4) Recent Iron Reduction i	· /				
Iron Deposits (B5) Thin Muck Surface (C7)					
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai					
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)				
Field Observations:					
Surface Water Present? Yes No _X Depth (inches)	: <u> </u>				
Water Table Present? Yes No X Depth (inches)	:				
Saturation Present? Yes No X Depth (inches)	: Wetland Hydrology Present? Yes No _X_				
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:				
Remarks:					

VEGETATION – Use scientific names of plants. Sampling Point:

	nts.			Sampling Point: 001-1U
Tree Stratum (Plot size: 30-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
2.				Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
3.				
ı				Total Number of Dominant Species Across All Strata: 1 (B)
5.				Percent of Dominant Species
3.				That Are OBL, FACW, or FAC: 0.0% (A/B
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15-foot radius)		'		OBL species 0 x 1 = 0
1				FACW species 10 x 2 = 20
2.				FAC species 0 x 3 = 0
3.				FACU species 0 x 4 = 0
1.				UPL species 60 x 5 = 300
5.				Column Totals: 70 (A) 320 (B
3.				Prevalence Index = B/A = 4.57
7.				Hydrophytic Vegetation Indicators:
		=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5-foot radius)		•		2 - Dominance Test is >50%
1. Glycine max	60	Yes	UPL	3 - Prevalence Index is ≤3.0 ¹
2. Cyperus esculentus	10	No	FACW	4 - Morphological Adaptations ¹ (Provide supporting
3.				data in Remarks or on a separate sheet)
4.				Problematic Hydrophytic Vegetation ¹ (Explain)
5.				¹ Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.				Tree – Woody plants 3 in. (7.6 cm) or more in
9.				diameter at breast height (DBH), regardless of height
10.				Sapling/shrub – Woody plants less than 3 in. DBH
11.				and greater than or equal to 3.28 ft (1 m) tall.
12.				Herb – All herbaceous (non-woody) plants, regardles
	70	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30-foot radius)		•		Woody vines – All woody vines greater than 3.28 ft i
1.				height.
2.				
3.				Hydrophytic Vegetation
4.				Present? Yes No X
		=Total Cover		
		- I Ulai Guvei		

SOIL Sampling Point 001-1U

		o the de				ator or co	onfirm the absence o	of indicators.)
Depth	Matrix	0/		r Feature		1.5.2	Tardina	Downsylva
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 3/2	95					Loamy/Clayey	
5-18	5YR 5/2	70	7.5YR 5/6	30		<u>M</u>	Loamy/Clayey	Prominent redox concentrations
					 	<u> </u>		
		<u> </u>			<u> </u>	 		
¹Type: C=Co	ncentration, D=Deple	etion RN	/=Reduced Matrix M	IS=Mas	ked Sand	d Grains	² I ocation: P	PL=Pore Lining, M=Matrix.
Hydric Soil In Histosol (Histic Epi Black His Hydrogen Stratified Depleted Thick Dan Sandy Mi Sandy Gl Sandy Re Stripped I Dark Surf	ndicators: (A1) ipedon (A2) stic (A3) n Sulfide (A4) Layers (A5) Below Dark Surface rk Surface (A12) ucky Mineral (S1) leyed Matrix (S4) edox (S5) Matrix (S6) face (S7)	(A11)	Polyvalue Belov MLRA 149B) Thin Dark Surfa High Chroma S Loamy Mucky M Loamy Gleyed X Depleted Matrix Redox Dark Su Depleted Dark Su Depleted Dark Su Redox Depress Marl (F10) (LRM	w Surface) ace (S9) Sands (S Mineral (Matrix (I x (F3) rface (F Surface Sions (F8 R K, L)	ce (S8) (I) (LRR R S11) (LRI (F1) (LRI F2) 	LRR R, , MLRA 1 R K, L) R K, L)	Indicators f	or Problematic Hydric Soils ³ : ack (A10) (LRR K, L, MLRA 149B) rairie Redox (A16) (LRR K, L, R) acky Peat or Peat (S3) (LRR K, L, R) be Below Surface (S8) (LRR K, L) rk Surface (S9) (LRR K, L) aganese Masses (F12) (LRR K, L, R) at Floodplain Soils (F19) (MLRA 149B) podic (TA6) (MLRA 144A, 145, 149B) bent Material (F21) allow Dark Surface (F22) explain in Remarks)
Depth (in	ches):						Hydric Soil Prese	nt? Yes <u>X</u> No
	m is revised from Nor 2015 Errata. (http://ww							CS Field Indicators of Hydric Soils,

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Heritage Wind	City/County: Orleans County Sampling Date: 07/14/2020				
Applicant/Owner: Heritage Wind, LLC (Apex Clean Energy)	State: NY Sampling Point: 001-1W				
Investigator(s): JM	Section, Township, Range: Town of Barre				
Landform (hillside, terrace, etc.): Flat Local	relief (concave, convex, none): None Slope %: 0-5				
Subregion (LRR or MLRA): LRR L, MLRA 101 Lat: 43.202509	Long: -78.120064 Datum: WGS84				
Soil Map Unit Name: Churchville silt loam, 0 to 2 percent slopes	NWI classification: PSS				
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes X No (If no, explain in Remarks.)				
Are Vegetation, Soil, or Hydrology significantly distur	rbed? Are "Normal Circumstances" present? Yes X No				
Are Vegetation, Soil, or Hydrologynaturally problems	<u> </u>				
SUMMARY OF FINDINGS – Attach site map showing sam	npling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Wetland Hydrology Present? Yes X No	Is the Sampled Area within a Wetland? Yes X No If yes, optional Wetland Site ID: 001-1W PFO				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1) Water-Stained Leaves (
High Water Table (A2) Aquatic Fauna (B13) Mad Barasita (B45)	Moss Trim Lines (B16)				
Saturation (A3) Marl Deposits (B15) Water Marks (B1) Hydrogen Sulfide Oder	Dry-Season Water Table (C2)				
Water Marks (B1) Hydrogen Sulfide Odor Sediment Deposits (B2) X Oxidized Rhizospheres					
Drift Deposits (B3) Presence of Reduced In					
Algal Mat or Crust (B4) Recent Iron Reduction i	• • • • • • • • • • • • • • • • • • • •				
Iron Deposits (B5) Thin Muck Surface (C7)	· · · · · · · · · · · · · · · · · · ·				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai	• • • • • • • • • • • • • • • • • • • •				
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)				
Field Observations:					
Surface Water Present? Yes No _X Depth (inches)	y:				
Water Table Present? Yes No X Depth (inches)					
Saturation Present? Yes No X Depth (inches)	: Wetland Hydrology Present? Yes X No				
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:				
Remarks:					
Remarks.					

VEGETATION – Use scientific names of plants.

	bsolute 6 Cover 30 20	Dominant Species? Yes	Indicator Status FACW	Dominance Test worksheet:
Acer rubrum Ulmus americana	20		FACW	
Acer rubrum Ulmus americana				Number of Dominant Species
		Yes	FAC	That Are OBL, FACW, or FAC: 7 (A)
1	20	Yes	FACW	Total Number of Dominant
T				Species Across All Strata: 7 (B)
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC:100.0% (A/B)
7				Prevalence Index worksheet:
<u> </u>	70	=Total Cover		Total % Cover of: Multiply by:
<u>Sapling/Shrub Stratum</u> (Plot size: 15-foot radius)				OBL species 20 x 1 = 20
1. Cornus racemosa	20	Yes	FAC	FACW species 110 x 2 = 220
2				FAC species 55 x 3 = 165
3.				FACU species 0 x 4 = 0
4.				UPL species0 x 5 =0
5				Column Totals: 185 (A) 405 (B)
6.				Prevalence Index = B/A = 2.19
7.				Hydrophytic Vegetation Indicators:
		=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5-foot radius)		•		X 2 - Dominance Test is >50%
1. Lysimachia nummularia	60	Yes	FACW	X 3 - Prevalence Index is ≤3.0 ¹
Acorus americanus	20	Yes	OBL	4 - Morphological Adaptations ¹ (Provide supporting
3.				data in Remarks or on a separate sheet)
4.				Problematic Hydrophytic Vegetation ¹ (Explain)
5.				¹ Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.				Tree – Woody plants 3 in. (7.6 cm) or more in
9.				diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardless
_	80	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: 30-foot radius)				Woody vines – All woody vines greater than 3.28 ft in
1. Vitis riparia	15	Yes	FAC	height.
2				Livelyambyelia
3				Hydrophytic Vegetation
4				Present? Yes X No No
	15	=Total Cover		
				•

SOIL Sampling Point 001-1W

		o the de				ator or c	confirm the absence of indicators.)
Depth	Matrix	0/		k Featur		1 2	Testan
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture Remarks
0-10	10YR 3/1	95	7.5YR 4/4	5	<u>C</u>	PL_	Loamy/Clayey Prominent redox concentrations
10-18	5YR 5/2	90	7.5YR 5/4	10	С	<u>M</u>	Loamy/Clayey Distinct redox concentrations
							
							·
							-
¹ Type: C=Ce	oncentration, D=Deple	etion, RN	1=Reduced Matrix, N	1S=Masl	ked Sand	d Grains.	
Hydric Soil							Indicators for Problematic Hydric Soils ³ :
Histosol			Polyvalue Belo		ce (S8) (l	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	oipedon (A2)		MLRA 149B)				? Coast Prairie Redox (A16) (LRR K, L, R)
	stic (A3)		Thin Dark Surfa		-		
	en Sulfide (A4)		High Chroma S	-			Polyvalue Below Surface (S8) (LRR K, L)
	d Layers (A5)		Loamy Mucky I			R K, L)	Thin Dark Surface (S9) (LRR K, L)
	d Below Dark Surface	(A11)	Loamy Gleyed	-	F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
Thick Da	ark Surface (A12)		X Depleted Matrix	x (F3)			Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy M	lucky Mineral (S1)		X Redox Dark Su	ırface (F	6)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy G	Gleyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Parent Material (F21)
Sandy R	Redox (S5)		? Redox Depress	sions (F	3)		Very Shallow Dark Surface (F22)
Stripped	Matrix (S6)		Marl (F10) (LR	RK, L)			Other (Explain in Remarks)
Dark Su	rface (S7)						
3Indicators o	f hydrophytic yogotati	on and w	votland hydrology mu	ict ho nr	ocont III	aloes dist	sturbed or problematic.
	Laver (if observed):	JII aliu v	retiand hydrology mic	ist be bi	eseni, ui	iicss uisi	surbed of problematic.
Type:							
Depth (in	nches):						Hydric Soil Present? Yes X No
Remarks:							
							n 2.0 to include the NRCS Field Indicators of Hydric Soils,
Version 7.0,	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/FS	SE_DOC	CUMENT	S/nrcs14	42p2_051293.docx)

Appendix C

Wetland Photographs



Photo 1 Wetland 001



Photo 2 Wetland 001

Heritage WindTown of Barre, Orleans County, New York

Appendix C: Wetland Photographs

Sheet 1 of 1

