ECR
Environmental Consulting & Restoration, LLC

September 24, 2020

Wetland Delineation Report – 179 Lake Shore Drive, Boxford, Massachusetts

Wetland Report Narrative

On September 15, 2020 Environmental Consulting & Restoration, LLC (ECR) delineated the landward limits of the wetland resource areas located at 179 Lake Shore Drive in Boxford (the site). The site consists of several large lots that sit atop Byers Hill with single-family homes, associated driveways, a garage, gardens, landscaped areas, etc. Other portions of the site consist of agricultural fields. The weather on September 15th was sunny, mostly clear, and warm (approximately 70 degrees) with light wind and dry site conditions. As a result of ECR's field work and review of available environmental databases, ECR is able to confirm that the site contains the following wetland resource areas and areas of Conservation Commission jurisdiction:

- Bordering Vegetated Wetlands (BVW)
- 100-foot buffer zone to BVW

Notes:

1. A portion of the site is located within Estimated/Priority Habitat for Rare Species according to the Massachusetts Natural Heritage & Endangered Species Program (MaNHESP).
2. The site does not contain Certified Vernal Pools according to the MaNHESP, however a Potential Vernal Pool is located within the "C" series wetland as documented below.
3. The site does not contain a U.S.G.S. mapped stream.
4. The site does not contain areas mapped as Land Subject to Flooding (FEMA Flood Zone).
5. The site is not located within an Area of Critical Environmental Concern.

Wetland Delineation

Wetland systems are located within the northwestern and eastern portions of the site. A BVW is located within the northwestern portion of the site to the south of the agricultural field. This BVW flows downgrade from east to west to a historic water-well site within the western portion of the property that appears to be piped off site to the west. Another BVW is located within the eastern portion of the site that flows off to the north and south, connected via culvert under the existing driveway. These vegetated wetlands were delineated following the methodology established by the Massachusetts Department of Environmental Protection (DEP) regulations found at 310 CMR 10.55 pertaining to the delineation of Bordering Vegetated Wetlands. The delineation was performed by analyzing vegetation, hydrology within 12 inches of the surface, and soil conditions within 20 inches of the surface. The vegetated wetlands contain hydric soils, saturated soils, and dominant wetland indicator plants. BVW flags (pink & black striped ribbons) were placed on and near the site to mark the limit of the wetlands as follows:

BVW #A1 to #A80 – wetland within northwestern portion of the site
BVW #B1 to #B21 – wetland to the north of the driveway within the eastern portion of the site
BVW #C1 to #C50 – wetland to the south of the driveway within the eastern portion of the site

One transect with two examination plots (yellow numbered plastic ribbons) was conducted in order to verify the accuracy of this wetland delineation (please refer to the DEP BVW Field Data Sheets attached).

ECR also located the limit of a Potential Vernal Pools (PVP) located within the "C" series wetland. The PVP is mapped by the MA Natural Heritage & Endangered Species Program (NHESP). The limits of the pool were marked with PVP flags (blue ribbons) #1 to #13 (connect) along the high-water line to the pool.

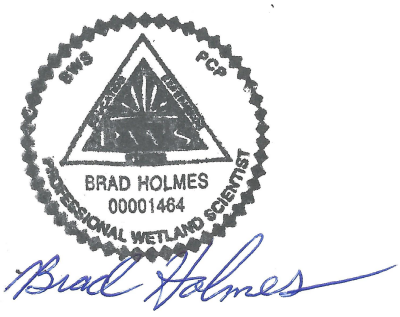
Please note, further review of the PVPs would be necessary to determine if they meet the criteria to be certified as defined by NHESP.

Attachments
Attached for your review are the following attachments:

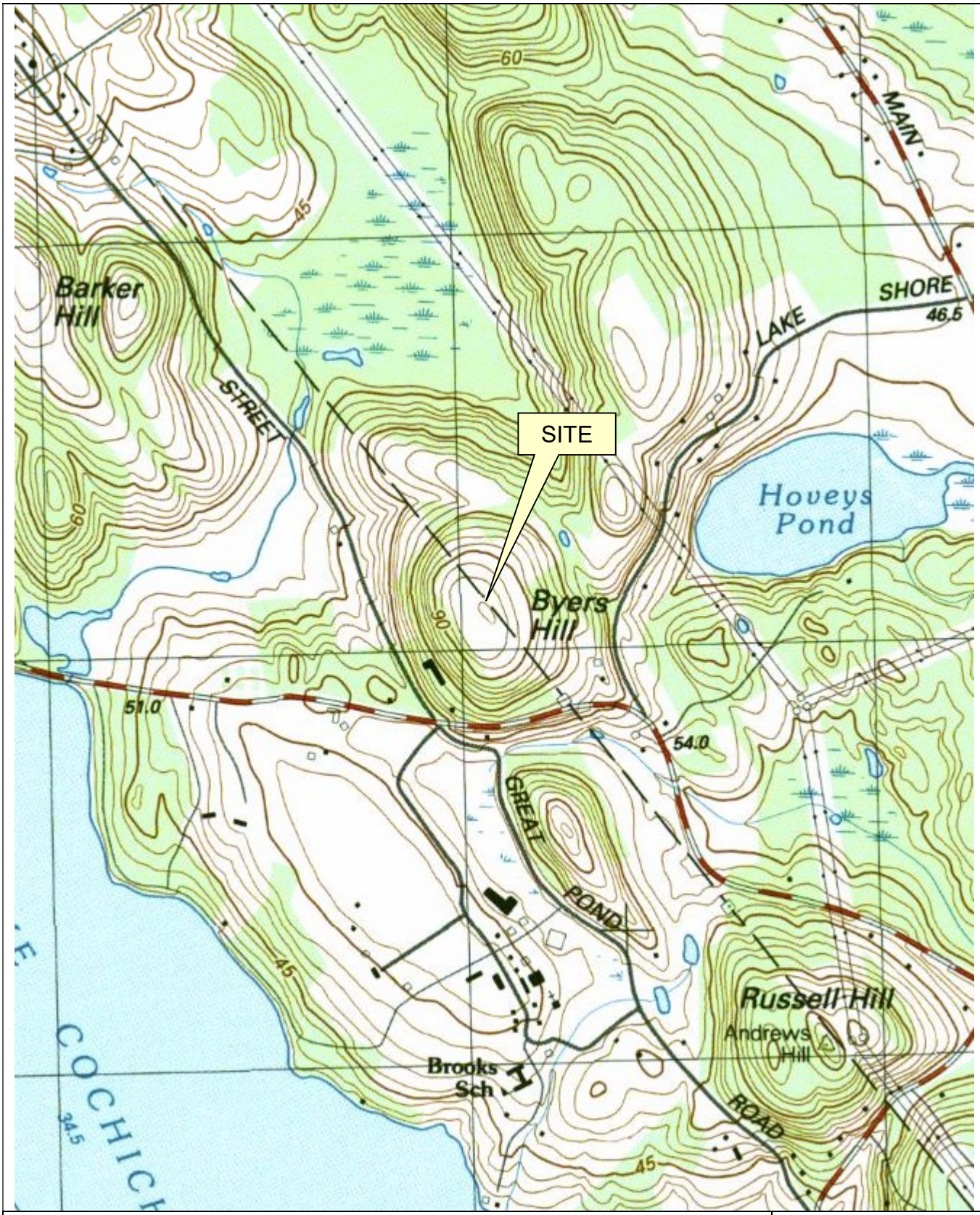
1. USGS Site Locus Map
2. FEMA Map
3. NHESP Estimated & Priority Habitat Map
4. DEP BVW Field Data Sheets

Upon review of this wetland delineation report, please contact me at (617) 529 – 3792 or brad@ecrholmes.com with any questions or requests for additional information.

Sincerely yours,
Environmental Consulting & Restoration, LLC



Brad Holmes, PWS, MCA
Manager



USGS SITE LOCUS MAP
179 Lake Shore Drive
Boxford, Massachusetts

Source: MassGIS Oliver Viewer

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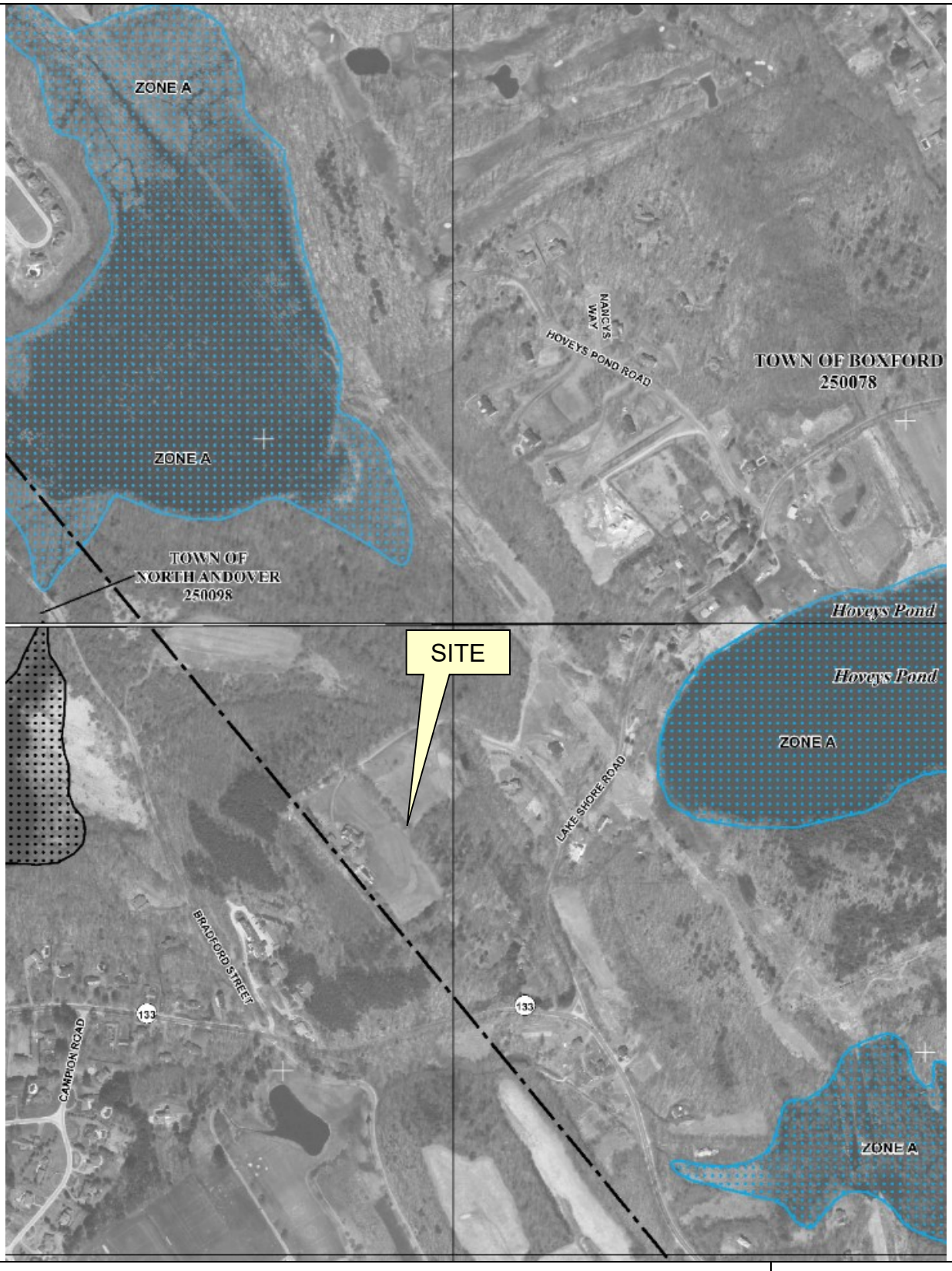

FEMA MAP
179 Lake Shore Drive
Boxford, Massachusetts

Source: FEMA Map 25009C0229F & 25009C0227F Eff: 07/03/2012

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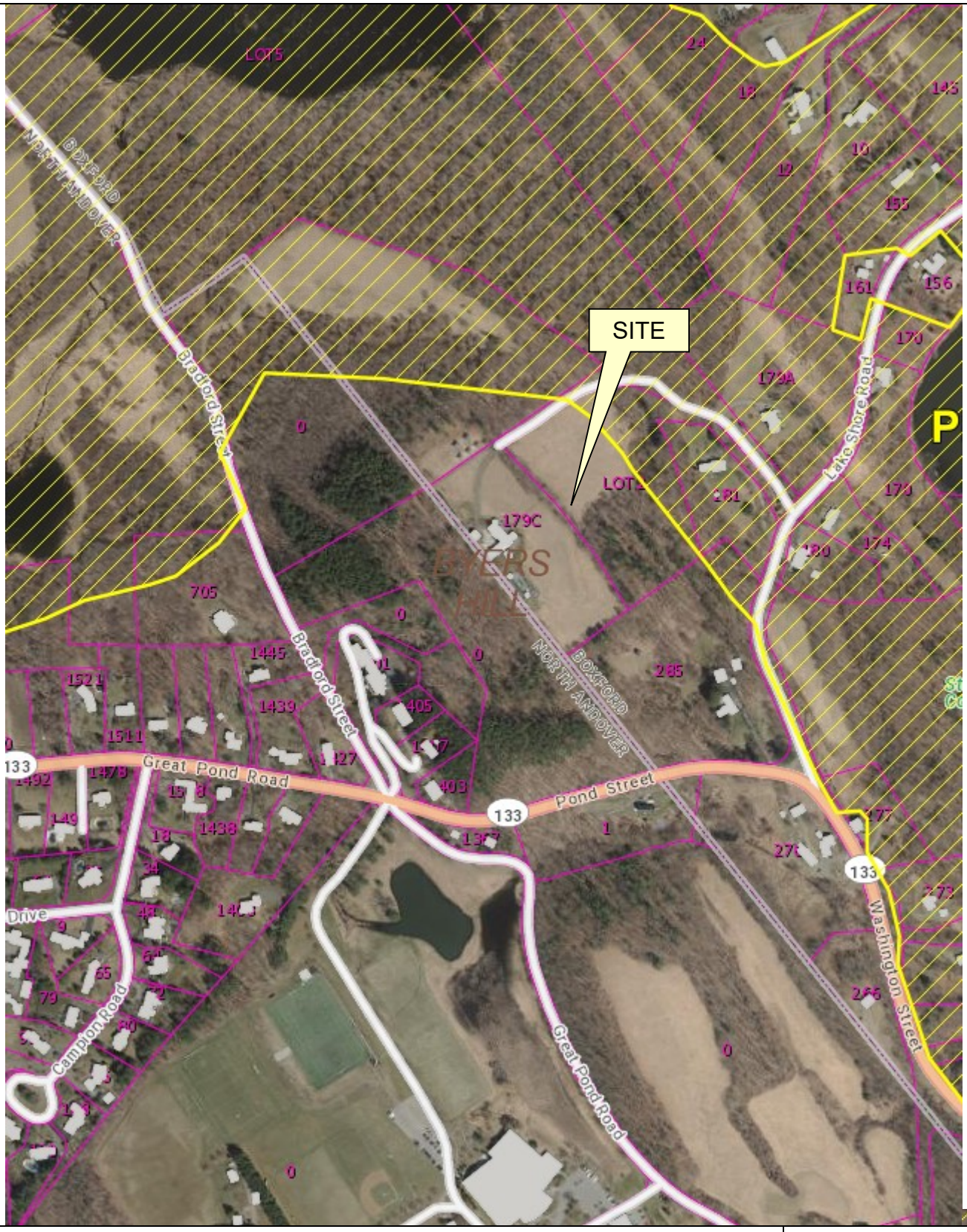

Priority Habitats of Rare Species, Estimated Habitat of Rare Wildlife & Certified Vernal Pools Map
179 Lake Shore Drive
Boxford, Massachusetts

Source: MassGIS Oliver Viewer

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Applicant: Prepared by: Brad Holmes, Environmental Consulting & Restoration, LLC Project Location: 179 Lake Shore Drive Boxford, MA

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary:fill out Section I only
- ☑ Vegetation and other indications of hydrology used to delineate BVW boundary: fill out sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Transect A Plot 1 Date: 9/15/20

A. Sample Layer and Plant Species			B. Basal Area (or percent cover)	C. Percent Dominance	D. Dominant Plant	Wetland Indicator Status
Trees	Red Maple	*Acer rubrum*	6,6,8,8,10,12,14= 502.3	86.7%	Yes	FAC*
	Crab Apple	*Malus spp.*	5,6,6= 77	13.3%	No	UPL
			Total = 579.3			
Saplings	None					
Shrubs	Multifloral Rose	*Rosa multiflora*	15.0%	100.0%	Yes	FACU
Herbaceous	Golden Rod	*Solidago spp.*	25.0%	35.7%	Yes	FAC
	Jewelweed	*Impatiens capensis*	25.0%	35.7%	Yes	FACW
	Soft Rush	*Juncus effusus*	10.0%	14.3%	No	FACW+
	Virginia Creeper	*Pathenocissus quinquefolia*	10.0%	14.3%	No	FACU
Vines	Bittersweet	*Celastrus scandens*	10.0%	66.7%	Yes	FACU-
	Poison Ivy	*Toxicodendron radicans*	5.0%	33.3%	Yes	FAC

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c. 131, s. 40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

** Use to identify plants that are acting as Hydrophytes (buttress roots, adventitous buds, etc.)

Vegetation Conclusion

Number of dominant wetland indicator plants: 4 Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? ☑ Yes ☐ **No**

title/date: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

map number: MA605

soil type map: Paxton, Woodbridge & Canton

hydric soil inclusions: No

Are field observations consistent with soil survey? ☐ Yes ☑ No

Remarks:

2. Soil Description

Horizon	Depth	Matrix	Texture	Redoximorphic Features
O	0-7.5"	10YR2/1-3/1	Organic	
B	7.5"-20"	10YR4/1-5/1	Gley	Redox. 20%

3. Other

Is soil hydric? ☑ Yes ☐ No

Other Indicators of Hydrology (check all that apply)

Site inundated? No

Depth to free water in observation hole: None

Depth to soil saturation in observation hole: None

Water lines: Yes

Drift Marks: No

Sediment Deposits: Yes

Drainage Patterns in BVW: No

Oxidized Rhizospheres: No

Water Stained Leaves: Yes

Recorded data (stream, tidal gauge; aerial photo; other)

Other: Plot is in wetland below wetland flag #A68

Evidence of flooding

Number of wetland plants > than number of non-wetland plants? ☑ Yes ☐ No

Wetland hydrology present:

hydric soil ☐ Yes ☐ No

other indicators ☑ Yes ☐ No

SAMPLE PLOT IS IN A BVW ☑ YES ☐ NO

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- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation Transect A Plot 2 Date: 9/15/20

A. Sample Layer and Plant Species			B. Basal Area (or percent cover)	C. Percent Dominance	D. Dominant Plant	Wetland Indicator Status
Trees	Crab Apple	*Malus spp.*	6,8,8,8= 177.8	13.3%	No	UPL
	Red Maple	*Acer rubrum*	8,12,24= 612.2	45.8%	Yes	FAC*
	Green Ash	*Fraxinus pennsylvanica*	12,12,12,14= 498.8	37.3%	Yes	FACW
	Norway Maple	*Acer platanoides*	5,6= 48.3	3.6%	No	UPL
			Total = 1337.1			
Saplings	Crab Apple	*Malus spp.*	10.0%	100.0%	Yes	UPL
Shrubs	Multifloral Rose	*Rosa multiflora*	10.0%	50.0%	Yes	FACU
	Morrows Honeysuckle	*Lonicera morrowii*	10.0%	50.0%	Yes	FACU
Herbaceous	Multifloral Rose	*Rosa multiflora*	10.0%	33.3%	Yes	FACU
	Poison Ivy	*Toxicodendron radicans*	10.0%	33.3%	Yes	FAC
	Garlic Mustard	*Alliaria petiolata*	10.0%	33.3%	Yes	FACU
Vines	Bittersweet	*Celastrus scandens*	25.0%	71.4%	Yes	FACU-
	Poison Ivy	*Toxicodendron radicans*	10.0%	28.6%	Yes	FAC

** Use to identify plants that are acting as Hydrophytes (buttress roots, adventitous buds, etc.)

Vegetation Conclusion

Number of dominant wetland indicator plants: 4 Number of dominant non-wetland indicator plants: 6

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? No

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? ☐ Yes ☑ **No**

title/date: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

map number: MA605

soil type map: Paxton, Woodbridge & Canton

hydric soil inclusions: No

Are field observations consistent with soil survey? ☑ Yes ☐ No

Remarks:

2. Soil Description

Horizon	Depth	Matrix	Texture	Redoximorphic Features
O	0-4"	10YR2/2	Organic	
A	4"-12"	10YR3/2-3/3	Refusal at 12"	

3. Other

Is soil hydric? ☐ Yes ☑ No

Other Indicators of Hydrology (check all that apply)

Site inundated? No

Depth to free water in observation hole: None

Depth to soil saturation in observation hole: None

Water lines: No

Drift Marks: No

Sediment Deposits: No

Drainage Patterns in BVW: No

Oxidized Rhizospheres: No

Water Stained Leaves: No

Recorded data (stream, tidal gauge; aerial photo; other)

Other: Plot is in upland above wetland flag #A68

Number of wetland plants > than number of non-wetland plants? ☐ Yes ☑ No

Wetland hydrology present:

hydric soil ☐ Yes ☑ No

other indicators ☐ Yes ☑ No

SAMPLE PLOT IS IN A BVW ☐ YES ☑ NO