



Wetland Report

To: NRPC-Richford

Date: November 07, 2023

From: Sheila McIntyre and Eric Licho, TCE

Re: Richford, VT

TCE Project No.: 23-181 NRPC-School to Playground Trail-Richford

This memorandum summarizes the wetland site investigation that was performed on an approximate 70-acre study area on several parcels in Richford, Vermont, on 09/18/2023, 09/19/2023, and 10/05/2023, subsequently referred to as the project area. The wetland delineation was conducted by Eric Licho, Environmental Engineer for TCE and Sheila McIntyre, Senior Environmental Planner for TCE, at your request due to your interest in trail construction. The delineation was confirmed by Elijah Schumacher, Vermont Wetlands Program, on 10/05/23. Because they were previously mapped as Class II on the Vermont State Wetland Inventory, wetlands G, H, S, I, and J will be considered Class II unless a petition is submitted to remove the Class II determination and establish them as Class III.

Summary:

Were any wetlands present? Yes, wetlands are present on the subject parcel.

What types of Wetlands were identified? Palustrine forested and palustrine emergent wetlands were found on the property.

Are there any required buffers? Yes, the presence of Class II wetlands requires a 50-foot buffer per the Vermont Wetland Rules.

What effect does this have on the property? Any disturbance within Class II wetlands or associated buffer requires a Wetland Permit from the Vermont Wetlands Program. Any fill within any wetlands is also regulated by the Army Corp of Engineers (ACOE); however, some limited activities may be allowed.

Should you have additional questions please feel free to contact Sheila McIntyre directly at (802) 879-6331x116 or sheila.mcintyre@tcevt.com. Background information regarding wetlands, site characteristics, methods, and more detailed explanation of my results as well as a regulatory discussion pertinent to the site are provided below.

What are Wetlands?

Wetlands are generally defined as areas that are wet for a period of time and support the growth of wetland vegetation (Environmental Laboratory 1987). For site-specific wetland identification and delineation, three parameters must be evaluated: vegetation, soils, and hydrology. All three of these parameters must meet the specific definitional criteria described in the Wetland Delineation Manual (Environmental Laboratory 1987) and Northcentral and Northeast Region Supplement (Environmental Laboratory 2012).

Although both “definitional” and “jurisdictional” wetlands meet specific vegetative, soil, and hydrologic criteria, the latter are simply definitional wetlands determined by ACOE personnel as subject to the regulations inherent in Section 404 of the Clean Water Act. Determination of a definitional wetland is a technical process, while determination of a jurisdictional wetland is a decision based on an examination of the driving forces, current conditions, and relationship of a definitional wetland in relation to its surroundings.

Site Description:

The study area is approximately 70 acres in size. The parcel ranges from ~200 feet on the southeast side of the property to ~115 feet in the northern portion of the property. The parcel is approximately 50% forested, 10% developed and 40% cleared open space. The study area has numerous existing structures and features including an elementary school, gravel and paved roads, wastewater treatment plant, sports fields and playground.

Methods:

The purpose of this site visit was to confirm the presence of wetlands, per wetland definitions in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory 1987), and to delineate and map their extent on the parcel.

Data for the routine wetland delineation was gathered from several sources including the Vermont Significant Wetlands Inventory mapping; US Fish and Wildlife Service’s National Wetlands Inventory (NWI) mapping; the national list of plant species that occur in wetlands in the Northwest-Region 1 (US ACOE 2013); color aerial photography (VCGI, Google Earth); and on-site findings.

Results:

Wetlands were identified within the limits of investigation, classified as palustrine forested (PFO) and palustrine emergent (PEM). These wetlands were delineated using survey grade mapping equipment and a Trimble GPS Unit.

The forested wetland data point showed signs of hydrophytic vegetation, hydric soil, and wetland hydrology. In this area, there was saturation to the surface, a high water table and surface water. Vegetation observed in the study area include Red Maple (*Acer rubrum*), European Alder (*Alnus glutinosa*), Sensitive Fern (*Onoclea sensibilis*), Ostrich Fern (*Matteuccia struthiopteris*), Jewel Weed (*Impatiens capensis*), Tall goldenrod (*Solidago altissima*), and New York Fern (*Parathelypteris noveboracensis*).

Soils were determined to be 7.5YR 4/1 from 0-7" and 7.5YR 5/1 with 30% redox features of 7.5YR 5/4.

The forested upland datapoint showed no signs of hydric soil or wetland hydrology. Some hydrophytic vegetation was observed. Vegetation observed in the study area include Sugar Maple (*Acer saccharum*), Red Maple (*Acer rubrum*), Tall Goldenrod (*Solidago altissima*), Black Cherry (*Prunus serotina*), and Ostrich Fern (*Matteuccia struthiopteris*). Soils were determined to be 7.5YR 4/3 from 0-5", 10YR 5/4 from 5-13" and 10YR 5/3 from 13-19".

The meadow wetland data point showed signs of hydrophytic vegetation, hydric soil, and wetland hydrology. In this area, there was saturation to the surface, a high water table, surface water and water stained leaves. Vegetation observed in the study area include European Alder (*Alnus glutinosa*), Reed Canary Grass (*Phalaris arundinacea*), Common Reed (*Phragmites australis*), Narrow-Leaf Cattail (*Typha angustifolia*), Joe-Pye-Weed (*Eutrochium purpureum*), and Dark Green Bulrush (*Scirpus atrovirens*). Soils were determined to be 10YR 4/1 with 10% redox of 10YR 4/4 from 0-4", 10YR 5/1 with 25% redox features of 10YR 4/4, and 10YR 5/1 with 20% redox of 10YR 4/4 and 10% redox of 10YR 5/6 from 12-17".

The meadow upland datapoint showed no signs of hydric soil or wetland hydrology. Some hydrophytic vegetation was observed. Vegetation observed in the study area include Sugar Maple (*Acer saccharum*), Staghorn Sumac (*Rhus typhina*), Canada Goldenrod (*Solidago canadensis*), Joe-Pye-Weed (*Eutrochium purpureum*), and Reed Canary Grass (*Phalaris arundinacea*). Soils were determined to be 10YR 5/2 from 0-8" and 7.5YR 6/3 from 8-14".

The floodplain wetland data point showed signs of hydrophytic vegetation, hydric soil, and wetland hydrology. In this area, there was saturation to the surface and a high water table. Vegetation observed in the study area include Sensitive Fern (*Onoclea sensibilis*), Black Cherry (*Prunus serotina*), Ostrich Fern (*Matteuccia struthiopteris*), Jewel Weed (*Impatiens capensis*), and Japanese Knotweed (*Reynoutria japonica*). Soils were determined to be 10YR 6/1 from 0-8" and 10YR 6/1 with 20% redox of 10YR 6/3 from 8-16".

The floodplain upland datapoint showed no signs of hydric soil or wetland hydrology. Some hydrophytic vegetation was observed. Vegetation observed in the study area include Sugar Maple (*Acer saccharum*), Ostrich Fern (*Matteuccia struthiopteris*), and Japanese Knotweed (*Reynoutria japonica*). Soils were determined to be 10YR 4/3 from 0-10" and 10YR 5/3 from 10-17".

Regulatory Background:

The following should provide a brief understanding of the State and Federal regulation of wetlands. The Vermont wetland rules designate all wetlands in Vermont as Class I, Class II, or Class III and are classified based on their presumed functions and values. Class I wetlands are considered by the State to be exceptional or irreplaceable in their

contribution to Vermont's natural heritage and are therefore so significant that they merit the highest level of protection under the Vermont Wetland Rules. Unless otherwise designated by the Board, a 100-foot buffer zone is required for all Class I wetlands. Class II wetlands are all other significant wetlands, that provide wetland functions and values that are deemed by the State as significant, either taken alone or in conjunction with other wetlands. A 50-foot buffer zone is required around all Class II wetlands. Class III wetlands are any remaining wetlands and do not require protection under these rules because they do not have sufficient functions or values. Typically, these wetlands are smaller than ½ acre.

Although the State of Vermont Wetland Rules only protect Class I and Class II wetlands, all wetlands are protected at the federal level by the ACOE under Section 404 of the Clean Water Act. Therefore, a wetland permit is needed from both the State and the ACOE for impacts to some wetlands. The nature and extent of permit type and cost varies dramatically based on impact size and design. Prior to permitting all proposed impacts must first show avoidance and minimization to the maximum extent practicable. Current fees for State wetlands permits are \$0.75/sf for wetland impact and \$0.25/sf for wetland buffer impact as well as a \$240 administrative fee. Fees for "After-The Fact" permits are higher. Federal ACOE in-lieu fees are calculated for wetland impacts over 5,000 sf at a rate of \$4.62/sf. This fee breakdown is a general explanation that is variable depending on the nature of the site, extent of impact, and project type proposed. For both state and federal permits, avoidance and minimization of impacts must be demonstrated. As an example, if there are upland and non-jurisdictional options available, an Applicant is required to demonstrate why the proposed disturbances cannot be limited to the upland area(s) available.

Attachments:

Photo Page
Natural Resources Map
Wetland Delineation Map

References:

Cowardin, et al. 1979. Classification of Wetlands and Deepwater Habitat of the United States. FWS/OBS-79/31. US Fish and Wildlife Service, Wash. DC. 131pp.

<http://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf>

Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Wetlands Research Program Technical Report Y-87-1. Department of the Army, Waterways Experiment Station, Vicksburg, MS. 157 pp.

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Federal Emergency Management Agency (FEMA), National Flood Insurance Program Flood Insurance Rate Map. <http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=94051896&IFIT=1>

Thompson, E. H., Sorenson, E. R. 2019. Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont. University Press of New England. Lebanon, NH.

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<http://anrmaps.vermont.gov/websites/anra/>

Vermont Natural Resources Board (VT NRB). 2010. Vermont Wetland Rules. Effective August 1, 2010. Vt. Code R. 12 004 056. State of Vermont.

<http://www.nrb.state.vt.us/wrp/rulemaking/wetlands2010/filedruledocs/VWR%207-16-10.pdf>

Vermont Fish and Wildlife Department 2014. Vermont Natural Community Ranking Specifications. 161pp.

Vermont Wetland Rules. Vt. Code R. 12 004 056. Adopted February 7, 1990.

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Vermont Wetland Rules. Vt. Code R. 12 004 056. Adopted January 6, 2020.

https://dec.vermont.gov/sites/dec/files/documents/wsmd_VermontWetlandRules.pdf

U.S. Army Corps of Engineers. 2013. Northcentral and Northeast 2013 Regional Wetland Plant List. 40pp.

http://wetland_plants.usace.army.mil/

USDA. 2019. Soil Survey. USDA-Soil Conserv.

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

Wetland Delineation Photo Page

NRPC Trials, Richford, VT



Photo 1: Photo depicts conditions in the forested wetland. This photo was taken facing northeast.



Photo 2: Photo depicts existing bridge crossings over the forested wetland. Photo was taken facing west.



Photo 3: Photo depicts hydric soils found in the forested wetland adjacent to the sports fields.



Photo 4: Photo depicts hydric soils found in the forested wetland adjacent to the school.

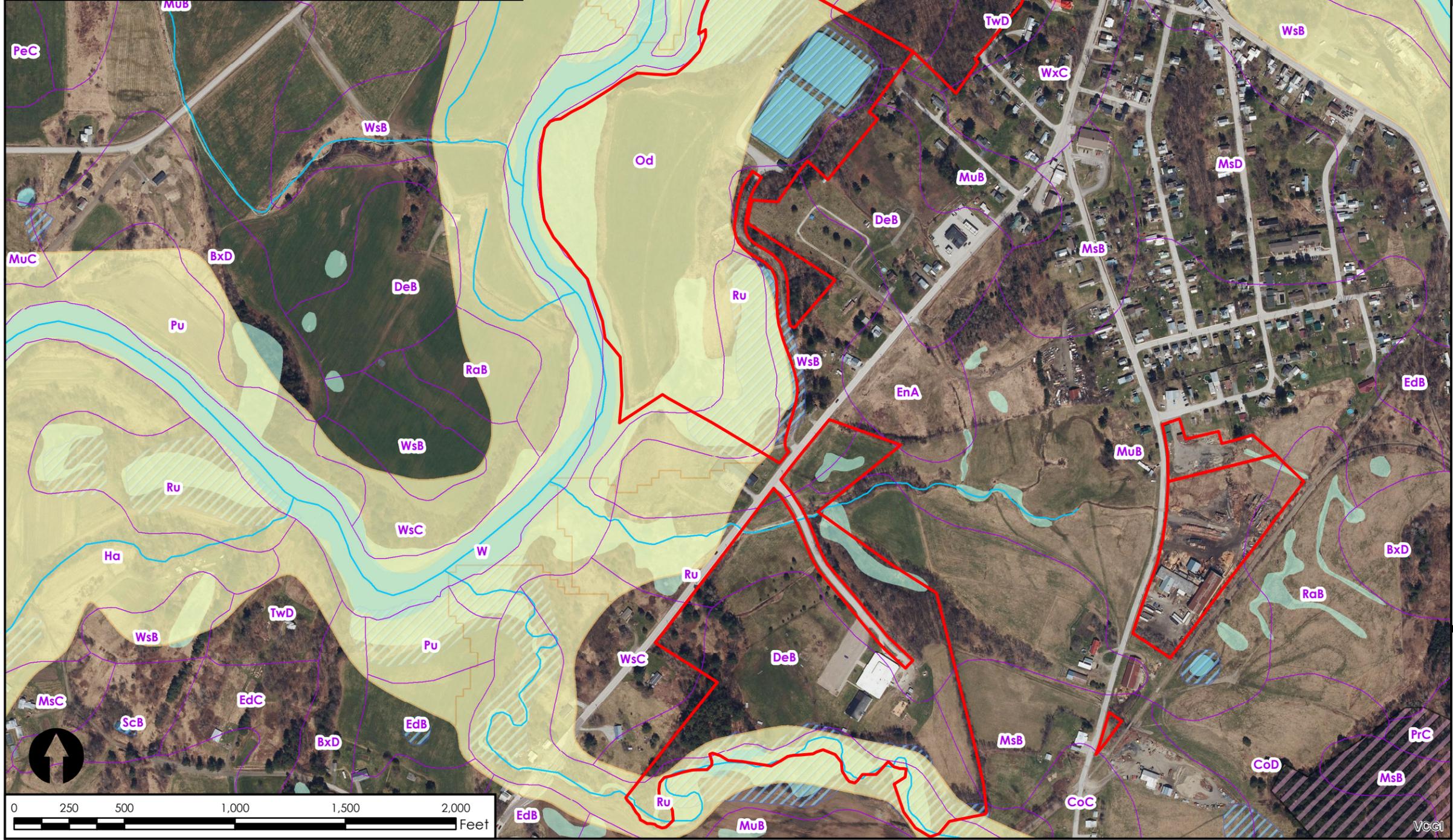
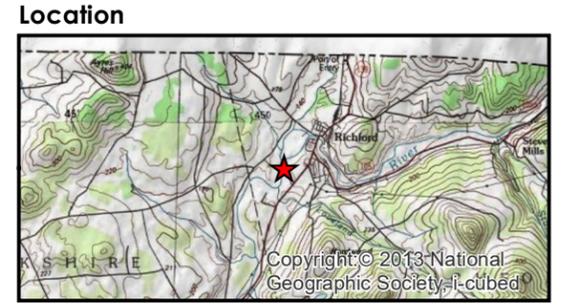


Photo 5: Photo depicts wetland conditions in the emergent wetland adjacent to the rail trail. This photo was taken facing north.



Photo 6: Photo depicts conditions in the floodplain adjacent to the river. This photo was taken facing south.

Soil Key	Soil Description	Hydric
CoC	Colton gravelly sandy loam, 8 to 15 percent slopes	N
DeB	Deerfield loamy fine sand, 0 to 8 percent slopes	N
DeC	Deerfield loamy fine sand, 8 to 15 percent slopes	N
EnA	Enosburg loamy fine sand, 0 to 3 percent slopes	Y
MsB	Missisquoi loamy sand, 3 to 8 percent slopes	N
MuB	Munson silt loam, 3 to 8 percent slopes	N
Od	Ondawa variant silt loam	N
RaB	Raynham silt loam, 3 to 8 percent slopes	Y
Ru	Rumney variant silt loam	Y
TwD	Tunbridge-Woodstock fine sandy loams, very rocky, 15 to 25 percent	N
W	Water	water
WsB	Windsor loamy fine sand, 3 to 8 percent slopes	N
WsC	Windsor loamy fine sand, 8 to 15 percent slopes	N
WxC	Woodstock-Rock outcrop complex, 8 to 15 percent slopes	N



Legend

- Project Boundary
- NRCS Soils
- Ground Water SPA*
- Surface Water SPA*
- VHD Stream
- VHD Open Water
- River Corridor
- Floodway*
- Class A Watershed*
- State Significant Wetlands
- Wetlands Advisory
- Deer Wintering Areas*
- Indiana Bat Hibernacula*
- Significant Natural Community*
- RTE Species*
- Uncommon Species*

FEMA Flood Zone**

- A*
- AE*
- No Data**

* = Layer does not occur within the map extent.
 ** = FEMA Flood Zone layer contains FEMA-digitized data only. Some locations may not have data.

Sources: Aerial Imagery by VCGI (Various dates); Streams by VHD (2018); VT E911 Roads (2019); VT Significant Wetland by ANR (2021); Soils by NRCS (2021); Contours by VCGI & CCRPC (Various dates); RTE Species and Natural Community by VT Fish & Wildlife (2020); Uncommon Species by VT Fish & Wildlife (2020); Tax Parcel Boundary compiled by VCGI; Deer Wintering Area by ANR (2020); River Corridor by ANR (2019); Groundwater & Surface Water Protection Areas by ANR (2019); All other layers by TCE (2021).

Disclaimer: The accuracy of information presented is determined by its sources. TCE is not responsible for any errors or omissions that may exist. Questions of on-the-ground location can be resolved by site inspections and /or surveys by a registered surveyor. This map is not a replacement for surveyed information or engineering studies.

**NRPC
 Richford, VT
 Natural Resources Map**

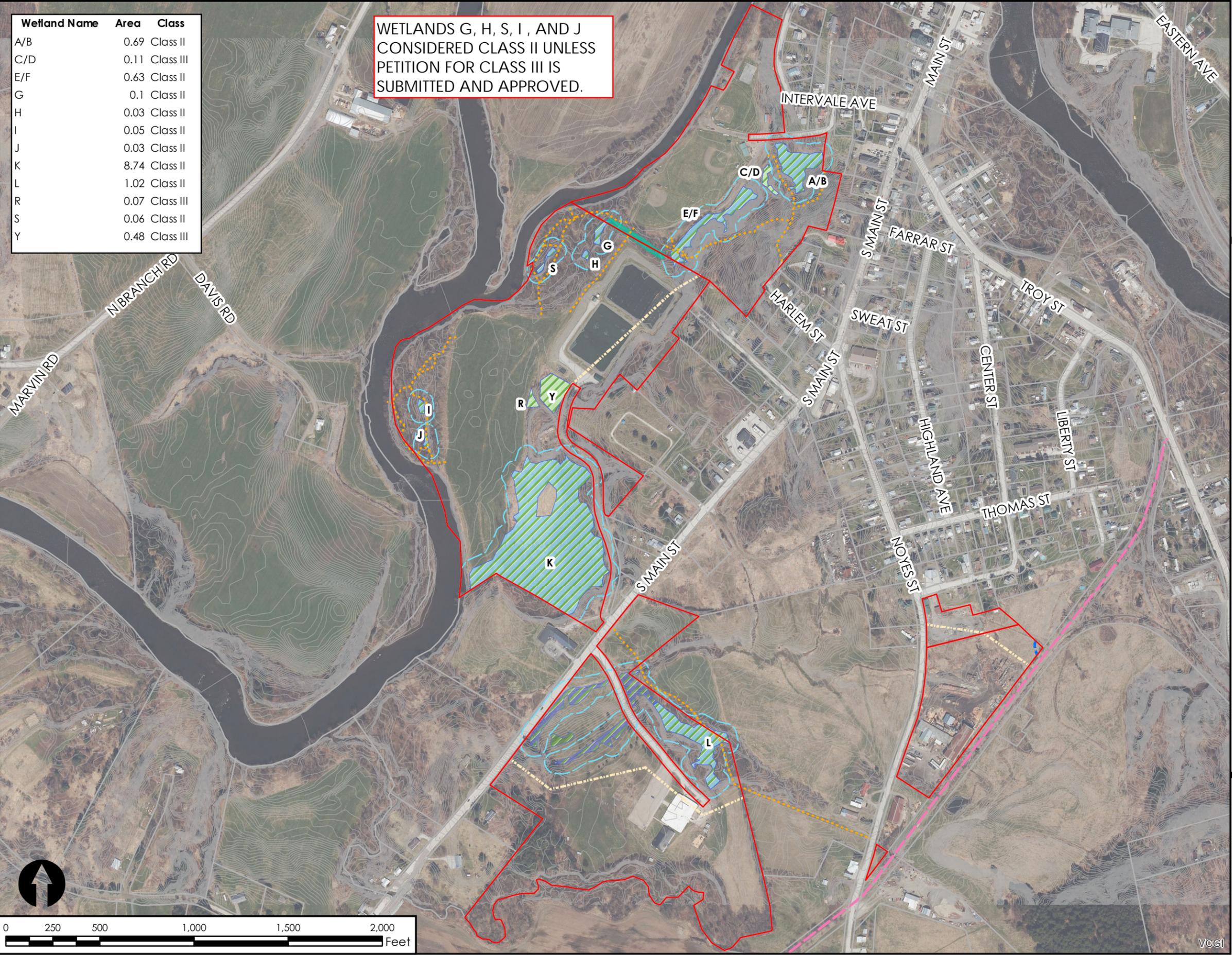
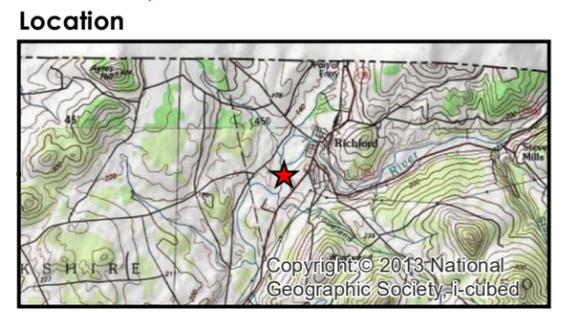
Project: 23-181
 Prepared By: ERL
 09/11/2023
 1 inch = 500 feet



VCGI

Wetland Name	Area	Class
A/B	0.69	Class II
C/D	0.11	Class III
E/F	0.63	Class II
G	0.1	Class II
H	0.03	Class II
I	0.05	Class II
J	0.03	Class II
K	8.74	Class II
L	1.02	Class II
R	0.07	Class III
S	0.06	Class II
Y	0.48	Class III

WETLANDS G, H, S, I, AND J
CONSIDERED CLASS II UNLESS
PETITION FOR CLASS III IS
SUBMITTED AND APPROVED.



Legend

- Project Boundary
- Tax Parcel Boundary
- Contours (1')
- Existing Trails
- Existing Rail Trail
- Constructed Ditch
- Limits of Delineation
- Approximate Wetland Buffer from Off-Site Wetlands
- 2023 Wetland Buffer (50')
- 2023 Class II & Class III Wetlands**
- Class II
- Class III
- Confirmed 2020 TCE Wetland Delineation**
- Class II
- Class III

Delineation confirmed by Elijah Schumacher, Vermont Wetlands Program, on 10/05/23.

This delineation was performed by Eric Licho and Sheila McIntyre of Trudell Consulting Engineers on 9/18/23 and 9/19/23.

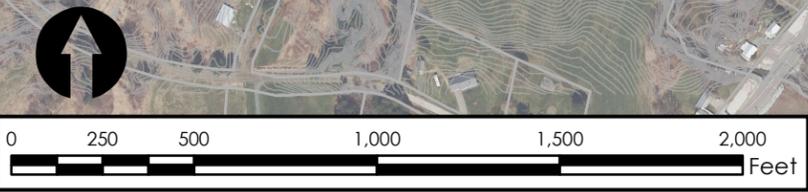
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**Richford Elementary & Town Park
Richford, VT**

Wetland Delineation Map

Project: 23-181
Prepared By: ERL
11/07/2023
1 inch = 500 feet



VCGI