



February 3, 2016

Ref: 57830.00

Ms. Zapata Courage  
District Wetlands Ecologist  
Vermont DEC – Watershed Management Division  
1 National Life Drive, Main 2  
Montpelier, VT 05620-3522

Re: Green Mountain Power Corporation  
Young Line Extension - 47 Line  
Shrewsbury, Vermont  
Application for a Vermont Individual Wetland Permit

Dear Zapata:

On behalf of Green Mountain Power Corporation (“GMP” or “Applicant”), VHB is submitting the enclosed application form and supporting materials to the Vermont Department of Environmental Conservation (“VT DEC”) Wetlands Program requesting a Vermont Individual Wetland Permit (“VIWP”) per the Vermont Wetland Rules (“VWR”) pursuant to 10 V.S.A. § 6025(d)(5), to authorize activities related to the construction and operation of a planned extension to an existing electric distribution line on the south and west side of Eastham Road in Shrewsbury, Vermont (“Project”). The Project would begin at approximately the location of E-911 address 1141 Eastham Road in Shrewsbury and extend approximately 566 feet underground and then approximately 860 feet overhead, requiring the installation of five new utility poles, to the north and northeast along the south side of the road, terminating at a new home site, currently under construction. Pre-application discussions were had with you onsite on December 10, 2015, with follow up concurrence of wetland delineation and classification per the VWR on December 28, 2015.

The Applicant is seeking authorization for wetland and buffer impacts resulting from activities required as part of proposed Project construction. A check payable to the State of Vermont for the permit fee of \$2,204.25 is also enclosed, based on the following wetland and buffer impacts:

- Wetland Clearing Impacts: 970 square feet (.02 acre) for new line right-of-way (“ROW”)
- Buffer Impacts: 10 square feet (.0002 acre) for 2 new utility poles
- Buffer Clearing Impacts: 6,877 square feet (.16 acre) for new line ROW

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Thank you for your assistance providing input as this Project was developed, and your timely review of the enclosed materials. Please do not hesitate to contact us if you have any questions, comments, or require further information regarding the enclosed Vermont Wetland Permit Application and supporting materials.

Sincerely,

A blue ink signature of Carla A. Fenner, consisting of a series of loops and a long horizontal stroke extending to the right.

Carla A. Fenner  
Environmental Scientist

A blue ink signature of Adam R. Crary, featuring a large, stylized initial 'A' followed by the name 'Crary' in a cursive script.

Adam R. Crary  
Senior Wetland Scientist

CAF/ARC/jkw

Enclosures (on CD)

- Vermont Wetland Permit Application
- Attachment 1 - Site Location Map (VHB)
- Attachment 2 - Wetland and Buffer Impact Exhibit (VHB)
- Attachment 3 - Natural Resources Map (VHB)
- Attachment 4 - Young Line Extension- Line 47 Site Plan Sketch (GMP)
- Attachment 5 - Project Abutter Information
- Attachment 6 - Town of Shrewsbury Tax Parcel Map
- Attachment 7 - USACE Data Sheets

cc: Mike Adams, U. S. Army Corps of Engineers (cover letter only)  
Timothy Upton, GMP

## Vermont Wetland Section Wetland Application Database Form (AFFIX TO THE FRONT OF THE APPLICATION)

<b>Applicant Name: Green Mountain Power Corp. (Timothy Upton)</b>		<b>Representative Name: VHB (Carla A. Fenner)</b>	
<b>Town where project is located: Shrewsbury</b>		<b>County: Rutland</b>	
<b>Project Location Description:</b> To the south side of the road within approximately 1,500 feet to the east of e911 address 1130 Eastham Road. <i>911 Street Address or direction from nearest intersection</i>			
<b>Project Summary:</b> The Project would construct an extension of the 47 Line utility, owned and operated by GMP, to provide service to a requesting customer at a new house site.			
<b>Permit Type Requested</b> (check all that apply) <input type="checkbox"/> Vermont General Permit Coverage <input type="checkbox"/> Wetland Determination <input checked="" type="checkbox"/> Vermont Wetland Permit			
<b>Impact Calculations:</b> Total up proposed impacts from wetland tables listed below			
Total Wetland Impact		Total Buffer Zone Impact	
square feet (s.f.)		10 square feet (s.f.)	
Total Wetland Clearing (qualified linear projects only)		Total Buffer Zone Clearing (qualified linear projects only)	
970 square feet (s.f.)		6,867 square feet (s.f.)	
<b>Permit Fees: Make check payable to - State of Vermont</b>			
Wetland Impact Fee: (\$0.75/sf) \$		Administrative Fee: \$240	
Buffer Impact Fee: (\$0.25/sf) \$2.50		Total Check Amount: \$2,201.75	
Clearing Fee: (\$0.25/sf) \$1,959.25			
<b>Existing Land Use Type:</b> (check all that apply) <input checked="" type="checkbox"/> Forestry <input type="checkbox"/> Residential (Subdivision) <input type="checkbox"/> Industrial/ commercial <input type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Transportation <input type="checkbox"/> Parks/Rec/Trail <input checked="" type="checkbox"/> Residential (Single Family) <input type="checkbox"/> Institutional <input checked="" type="checkbox"/> Undeveloped			
<b>Proposed Land Use Type:</b> (check all that apply) <input type="checkbox"/> Forestry <input type="checkbox"/> Residential (Subdivision) <input type="checkbox"/> Industrial/ commercial <input type="checkbox"/> Agriculture <input type="checkbox"/> Transportation <input type="checkbox"/> Parks/Rec/Trail <input type="checkbox"/> Residential (Single Family) <input type="checkbox"/> Institutional <input checked="" type="checkbox"/> No Change			
<b>Proposed Impact Type:</b> (check all that apply) <input type="checkbox"/> Buildings <input checked="" type="checkbox"/> Utilities <input type="checkbox"/> Parking <input type="checkbox"/> Septic/Well <input type="checkbox"/> Stormwater <input type="checkbox"/> Driveway <input type="checkbox"/> Road <input type="checkbox"/> Parks/Path <input type="checkbox"/> Agriculture <input type="checkbox"/> Pond <input type="checkbox"/> Lawn <input type="checkbox"/> Dry Hydrant <input type="checkbox"/> Beaver dam alteration <input type="checkbox"/> Silviculture <input type="checkbox"/> Aesthetics <input type="checkbox"/> Other <input type="checkbox"/> No Impact			
<b>Wetland 1: 2015-1</b> (Label using Wetland ID from application if applicable, use supplemental sheets if more than one wetland is being impacted)		Location: <b>Shrewsbury</b>	
Wetland Type: <b>PEM, PSS, PFO</b>		WL Size Class : <b>Within Study Area: Approximately 0.48 acre (20,968 square feet)</b> <b>VSWI: Approximately 23.7 acres</b>	
<b>Proposed Alterations</b>			
<b>Wetland Alteration:</b>		<b>Buffer Zone Alteration:</b>	
Wetland Alteration Type (check all that apply)			
Wetland Fill: s.f.		<input type="checkbox"/> Dredge	<input type="checkbox"/> Drain
Temporary: s.f.	Temporary: s.f.	<input checked="" type="checkbox"/> Cut Vegetation	<input type="checkbox"/> Stormwater
Permanent: 970 s.f.	Permanent: 6,877 s.f.	<input checked="" type="checkbox"/> Trench/Fill	<input type="checkbox"/> Other
<b>Mitigation</b>			
<b>Avoidance and Minimization</b> (s.f. of wetland NOT impacted):		Wetland: s.f. Buffer Zone s.f.	
<b>Wetland Mitigation: (s.f. Gained)</b>		<b>Buffer Zone Mitigation (s.f. Gained):</b>	
Restoration s.f.	Enhancement s.f.	Restoration s.f.	Enhancement s.f.

Creation s.f. Conservation s.f. Creation s.f. Conservation s.f

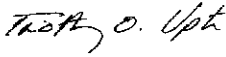

**Reason for Mitigation:**

Correction of Violation

Mitigation to offset permit impacts

Voluntary

## Vermont Wetland Permit Application/Determination Petition

QUESTION	INSTRUCTIONS AND APPLICANT ANSWER	STAFF NOTE
1. Applicant	If the applicant is someone other than the landowner, the landowner information must also be included below.	
1.1. Applicant Name	Green Mountain Power Corporation ("Applicant") (Attn: Timothy Upton)	
1.2. Applicant Address	2152 Post Road, Rutland VT 05701	
1.3. Applicant Phone Number	(802) 770-3215	
1.4. Applicant Email	Tim.upton@greenmountainpower.com	
1.5. Applicant Signature (original signature required)	<p>By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>X </p> </div> <div style="border-left: 1px solid black; padding-left: 10px;"> <p>Date: 01/19/2016</p> </div> </div>	
2. Representative	Consultant, engineer, or other representative that is responsible for filling out this application, if other than the applicant or landowner	
2.1. Representative Name	Carla Fenner	
2.2. Representative Address	VHB, 40 IDX Drive, Building 100, Suite 200, South Burlington VT 05403	
2.3. Representative Phone Number	(802) 497-6144	
2.4. Applicant Email	cfenner@vhb.com	
2.5. Representative Signature (original signature required)	<p>By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>X </p> </div> <div style="border-left: 1px solid black; padding-left: 10px;"> <p>Date: 01/19/2016</p> </div> </div>	
3. Landowner	Landowner must sign the application. Use this space if landowner is different from the applicant	
3.1. Landowner Name	GMP will construct, own, and maintain the infrastructure being installed under this permit and as such is the applicant and signatory. GMP is responsible for establishing right-of-way ("ROW") easements with landowners and municipalities or agencies for work on private lands and existing road ROWs.	
3.2. Landowner Address		
3.3. Landowner Phone Number		
3.4. Landowner Email		
3.5. Landowner Easement	Attach copies of any easements, agreements or other documents conveying permission, and agreement with the landowner stating who will be responsible for meeting the terms and conditions of the permit. List the attachment for this information in this section.	
3.6. Landowner Signature (original signature required)	<p>By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> <p>X N/A (See 3.1 above)</p> </div> <div style="border-left: 1px solid black; padding-left: 10px;"> <p>Date:</p> </div> </div>	
4. Location of Wetland and Project	Location description should include the road the wetland is located on, the compass direction of the wetland in relation to the road, 911 street address if available, and any other distinguishing geographic features.	

	<p>The Project site is located along a rural dirt road (Eastham Road) in Shrewsbury, Vermont. A site location map depicting the Project location and VHB's investigation area is included in Attachment 1.</p> <p>An investigation area of approximately 3.5 acres, surrounding the approximately 1,426 foot long and 30 foot wide project corridor, was established and is shown on the Natural Resources Map (Attachment 3). The proposed project would extend an existing GMP distribution line ("47 Line") which currently terminates at a private residence located at the E911 address 1141 Eastham Road in Shrewsbury. The 47 Line extension would be installed parallel to the south side of Eastham Road for approximately 1,426 linear feet where it would terminate at a new house site currently under construction ("Project").</p>		
<p>5. Site Visit Date and Attendees</p>	<p>Date of visit with District Wetlands Ecologist</p> <p>December 10, 2015</p>	<p>List people present for site visits including Ecologist, landowner, and representatives.</p> <p>Zapata Courage (VT DEC Wetlands Ecologist) Carla Fenner (VHB)</p>	
<p>6. Wetland Classification</p>	<p>The wetland is a Class II wetland because (Choose one):</p> <p>The wetland is mapped on the VSWI. VT DEC provided written concurrence with VHB's delineation and classification on December 28, 2015.</p>		
<p>7. Description of Entire Wetland or Wetland Complex</p>	<p>Answer the following questions regarding the entire wetland or wetland complex. A wetland complex is generally defined as two or more wetland types that are contiguous and interrelated. Specific questions about the wetland in the project area will follow.</p>		
<p>7.1. Size of Wetland Complex in Acres</p>	<p>Can be obtained from the Environmental Interest Locator Map for mapped wetlands</p> <p>The wetland complex as mapped in the VSWI is 23.7 acres. Most of the VSWI-mapped feature is beyond the limits of VHB's area of investigation relevant to this permit ("Study Area" shown on the Natural Resources Map, Attachment 3). As delineated by VHB and field-reviewed by VT DEC on December 10 and concurred by VT DEC on December 28, 2015 (delay due to minor updates to VHB's wetland mapping), the portion of the wetland complex that occurs within VHB's Study Area was delineated at 20,968 square feet (0.48 acre), observed to be extending beyond the Study Area largely to the south and west, but also mapped extending to the northeast across Eastham Road. Although not part of VHB's field assessment or delineation work, it is assumed that the wetland complex may include additional area outside of what is mapped on the VSWI based on remote sensing.</p>		
<p>7.2. Natural Community Types Present</p>	<p>List all wetland types in the wetland or wetland complex and their abundance or relative abundance. For example: 50 acres of softwood forested swamp; or 30% scrub swamp, 70% emergent wetland</p> <p>Within the VHB Study Area: PEM (approximately 60% of delineated area), PSS (approximately 20% of delineated area), PFO (Approximately 20% of delineated area)</p> <p>According to available aerial photography, the VSWI complex appears to be approximately 50% PSS/PFO and 50% PEM.</p>		
<p>7.3. Landscape Position</p>	<p>Where is the wetland located on the landscape? Examples: bottom of a basin, edge of a stream, shore of a lake, etc.</p> <p>The wetland complex is located in a topographically defined valley, where an upper perennial stream has been modified by beavers for numerous years, resulting in a shift in vegetation and hydrology and a discontinuous channel through the wetland complex. The stream (identified as 2015-SC-1 on the Natural Resources Map, Attachment 3) is an unnamed tributary of Freeman Brook and according to the VSWI, there are numerous significant wetlands along the tributary and other Freeman Brook tributaries in the vicinity.</p>		
<p>7.4. Wetland Hydrology</p>	<p>Describe the main source of wetland hydrology for the wetland complex. List any river, streams, lakes and ponds.</p>		

	<p>Primarily surface water, secondarily groundwater discharge.</p> <p>Include answers to the following where appropriate:</p>	
7.4.1. Direction of flow	<p>For example: stream flows from north to south through the wetland complex. Flow within the VHB-delineated portion of the wetland is generally northeast to southwest. Flow enters the wetland from where a culvert underneath Eastham Road outlets waters of the Unnamed Tributary of Freeman Brook (VHB stream identification 2015-SC-1), and then extends southwest within a mixed PEM and PSS portion of the wetland complex.</p>	
7.4.2. Influence of hydrology on wetland complex	<p>For example: The river provides flood water to the wetland in the spring.</p> <p>Seasonal high water table, overland flow of precipitation runoff, and some seasonal flooding (snowmelt, early season rains) from stream 2015-SC-1 are the primary influences on hydrology.</p> <p>The wetland complex is located adjacent to a small upper-perennial stream and extends laterally away from the stream where a history of beaver activity, convex topography, and a high water table create wetter soil conditions than surrounding upland areas.</p>	
7.4.3. Relation to the project area	<p>Distance between the project area and any nearby surface waters.</p> <p>The Project would be located along Eastham Road, within the upgradient portion of the wetland that lies to the south of Eastham Road (the wetland is mapped as extending to the north of Eastham Road associated with the flow of the Unnamed Tributary of Freeman Brook via the Eastham Road culvert described in 7.4.1 above).</p>	
7.4.4. Hydroperiod	<p>Discuss frequency and duration of flooding, ponding, and/or soil saturation.</p> <p>High water table, beaver influence, and the presence of adjacent surface waters have created permanently saturated soil conditions and seasonally saturated soil conditions in the wetland complex.</p>	
7.5. Surrounding Landuse of the Wetland Complex	<p>For example: rural residential and forested; agricultural and undeveloped,</p> <p>The wetland complex is bounded by private forestlands to the north, east, and west, and by rural residential development including small fields and private residences to the south and scattered along Eastham Road to the north.</p>	
7.6. Relation to Other Nearby Wetlands	<p>Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question.</p> <p>The two closest VSWI mapped wetlands are approximately 335 feet to the south and 600 feet to the southeast; both of these nearby wetlands are located along an adjacent unnamed tributary to Freeman Brook. The closest downstream wetland is approximately 990 feet from the downstream end of the wetland complex as mapped on the VSWI.</p> <p>Although the nearby wetlands described here and portions of the wetland complex beyond the subject wetland were outside of VHB's Study Area, hydrologic connection is assumed to be present amongst these features based on VHD stream mapping and an evaluation of available contour data for the area.</p>	
7.7. Pre-project Cumulative Impacts to the Wetland	<p>Identify any cumulative ongoing impacts outside of the project that may influence the wetland. Examples include but are not limited to wetland encroachments off the subject property, land management in or surrounding the wetland, or development that influences hydrology or water quality.</p> <p>Pre-project impacts to the wetland are minimal, as the wetland occurs within a forested area largely undisturbed by recent human developments. However the construction and maintenance of Eastham Road has impacted the amount of hydrologic connectivity within the wetland complex and limited sediment/pollutants coming from the use of Eastham Road are likely present. As noted in Section 7.3 above, a history of beaver activity has resulted in significant modifications to the wetland complex and the perennial stream flowing through it.</p>	

	<p>Forest management activities can typically impact wetland soils and hydrology and introduce or spread non-native invasive plants. Although these impacts were not directly observed within VHB's Study Area, indications of forest management in the wetland complex such as the presence of remnant logging roads and sugarbush tubing and access points were observed in the field and are partially visible on available aerial photography. As such, impacts from these activities may be present within the complex and so are identified here.</p>	
<p>8. Description of Subject Wetland</p>	<p>Subject Wetland is defined as the area of wetland in the project area, but not limited to the portion of the wetland to be directly impacted by the project. For the purposes of this application, the subject wetland should encompass any portion of the larger wetland or wetland complex that could be directly or indirectly impacted by the project, as defined by hydrology, vegetation and/or physical characteristics.</p>	
<p>8.1. Context of Subject Wetland</p>	<p>Describe where the subject wetland is in the context of the larger wetland or wetland complex described above.</p> <p>The subject wetland (identified by VHB as 2015-1 on the Wetland Impact Exhibit, Attachment 2 and the Natural Resources Map, Attachment 3) occurs within a larger riparian wetland complex, which generally bounds an unnamed tributary headwater of Freeman Brook, which is itself a contributing tributary to Mill River; the Freeman Brook confluence into Mill River is adjacent to Route 103 in East Wallingford.</p> <p>The subject wetland is within a mapped VSWI complex as identified in section 7.1 above. The subject portion of this wetland complex is located generally along the south side of the existing town road corridor of Eastham Road. The subject wetland was delineated by VHB to consist of 20,968 square feet (0.48 acre), which largely overlaps the mapped VSWI. Although not mapped on the VSWI, additional riparian wetlands may occur upgradient along the Unnamed Tributary to Freeman Brook (identified as 2015-SC-1 within the VHB Study Area, see Attachment 3). Significant wetlands are mapped downgradient from the subject wetland complex and along other upper perennial unnamed tributaries of Freeman Brook.</p> <p>VHB delineated a Class III wetland (identified as 2015-2 on the Natural Resources Map, Attachment 3) which occurs within the mapped VSWI but is small and isolated in the landscape and has been confirmed in the field as Class III by VT DEC on December 10, 2015 and in writing on December 28, 2015.</p>	
<p>8.2. Wetland Landuse</p>	<p>For example: mowed lawn; old field; naturally vegetated. Describe any previous and ongoing disturbance in the subject wetland.</p> <p>The subject wetland is currently in an undeveloped state, consisting of a natural vegetative condition for the wetland type and landscape position. A history of beaver activity is observable within the subject wetland and to the south and west into the rest of the complex. An existing cleared corridor and gravel road, Eastham Road, bisects the wetland complex immediately to the northeast from the subject wetland; proposed Project activities would occur along the existing road corridor in the subject wetland.</p>	
<p>8.3. Wetland Vegetation</p>	<p>List dominant wetland community type and associated dominant plant species.</p> <p>Typical PEM vegetation: <i>Typha latifolia</i>, <i>Spiraea alba</i>, <i>Carex sp.</i>                  Typical PSS vegetation: <i>Alnus incana</i>                  Typical PFO vegetation: <i>Abies balsamea</i>, <i>Fraxinus pennsylvanica</i></p>	
<p>8.4. Wetland Soils</p>	<p>Use USDA NRCS information where possible and use the ACOE Delineation Manual soil description</p> <p>NRCS: Sheepscot fine sandy loam (123B), Sunapee fine sandy loam (124C)                  Army Corps of Engineers ("ACOE"): Depleted Matrix (F6)</p>	
<p>8.5. Wetland Hydrology</p>	<p>Use descriptions from the ACOE Delineation Manual.</p> <p>High Water Table (A2), Saturation (A3), Water-Stained Leaves (B9), Microtopographic Relief (D4), Moss-Trim Lines (B16)</p>	



8.6. Buffer Zone	Describe the buffer zone of the subject wetland including:	
8.6.1. General landuse	<p>For example: mowed road shoulder; forested; old field; paved road and residential lawns etc. Describe any previous and ongoing disturbance in the buffer zone.</p> <p>Land use in the buffer is similar to wetland land use as described above within VHB's Study Area. The buffer within the Study Area is largely undisturbed, excepting the existing road and associated drainage modifications for the road. Approximately 10 feet along the edge of the road is maintained by routine brushhogging. Other buffer vegetation in the Study Area is second growth forest.</p>	
8.6.2. Buffer vegetation	<p>List community type and dominant plant species</p> <p><i>Betula alleghaniensis, Abies balsamea, Picea rubens, Betula populifolia, Prunus serotina, Acer saccharum, Acer rubrum</i></p>	
8.6.3. Buffer soils	<p>Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description</p> <p>NRCS: Sheepscot fine sandy loam (123B), Sunapee fine sandy loam (124C) ACOE: None</p>	

9. Wetland Determination	If the application involves a wetland determination please answer the following. <b>If not, skip to Section 10.</b>	
9.1. Reason for Petition	Please choose one from the dropdown menu:	
9.2. Previous Decisions	Please list all determinations and decisions, if any, issued by the Secretary, Panel or former Water Resources Board, pertaining to the wetland or buffer at issue:	
9.3. Narrative	Please provide any narrative to support the petition for a wetland determination here. This section is not required for petitions to add a Section 4.6 presumed wetland to the VSWI map, but is required for all other petitions.	

**If the application is only for a Wetland Determination only, skip to Section 13**

10. Project Description		
10.1. Overall Project	<p>Description of the project. For example: six-lot residential subdivision; expansion of an existing commercial building, access drive to a single family residence.</p> <p>As summarized in Section 4 above, the Project is proposed to extend and existing distribution line to provide utility service to a new house site on Eastham Road in Shrewsbury, Vermont. The extended 47 Line would be installed underground from the house at 1141 Eastham Road, for approximately 566 feet to the property boundary of Paul Young, the requesting GMP customer. Young's property boundary is located at the north end of a lawn surrounding a residence at E911 address 1130 Eastham Road in Shrewsbury (see Town of Shrewsbury Tax Map, Attachment 6). At the Young property boundary, the 47 Line would be brought above ground and extend for approximately 860 feet along Eastham Road to the new house site (see Natural Resources Map, Attachment 3 and Young Line Extension-Line 47 Site Plan Sketch, Attachment 4). A total of 5 new poles are required to complete the above-ground portion of the 47 Line extension. Construction is anticipated to start in the spring of 2016, pending authorization of a Vermont Wetland Permit ("VWP").</p>	
10.2. Project Purpose	<p>For example: To construct a residential subdivision, upgrade existing road to improve access, extend a trail system</p> <p>The purpose of the Project is for GMP to provide power to customers within its service area. In order to meet its customer's needs, GMP needs to</p>	

	extend the 47 Line to a new house site.	
10.3.Acres Owned by Applicant	<p>Acreage of subject property.</p> <p>GMP will install, own and maintain the Project.</p> <p>GMP is responsible for acquiring necessary ROW easements for both the underground portion of the Project (Town of Shrewsbury, Eastham Road ROW) and the aboveground portion of the Project (Paul Young).</p>	
10.4.Acres Involved in the Project	<p>Acreage of area involved in the project.</p> <p>The Project would include the extended 47 Line and the 30 foot wide ROW (15 feet on either side of the new line); the Project line will generally be between 28 and 21 feet from the centerline of Eastham Road (see Young Line Extension- Line 47 Site Plan Sketch, Attachment 4).</p>	
11.Project Details	Provide details regarding specific impacts to the wetland and buffer zone	
11.1.Specific Impacts to Wetland and Buffer Zone	<p>List portions of the project that will specifically impact the wetland or buffer zone.</p> <p>Impacts to wetlands and buffers resulting from the Project would be limited to the installation of 2 new poles and the new tree clearing necessary to create the new 30 foot wide ROW corridor. The wetland and buffer is assumed to be present on both sides of Eastham Road (VHB did not conduct delineations on the north side of the road), however all Project impacts, operations, and maintenance would be limited to areas south of Eastham Road.</p> <p>The underground portion of the 47 Line extension does not occur in wetlands or buffers.</p>	
11.2.Dimension Details	<p>Square footage of buildings, dimension of roads including fill footprint.</p> <p>New fill would be restricted to approximately 3 square feet, which includes approximately 1.5 square feet for each of two new utility poles placed in the wetland buffer. Soil disturbance would be limited to up to 5 square feet per pole for a total of 10 square feet of wetland buffer impact for new poles.</p> <p>The ROW dimensions would occupy a 30 foot wide corridor, centered on the overhead portion of the Project, which will extend across both wetland and buffer areas. As shown on the Wetland Impact Exhibit (Attachment 2), dimensions of tree clearing impacts to the wetland and buffer are 970 square feet and 6,877 square feet respectively.</p>	
11.3.Bridges and Culverts	<p>Culvert circumference, length, placement and shapes, or bridge details.</p> <p>No culverts, bridges, etc. are proposed.</p>	
11.4.Construction Sequence	<p>Describe any details pertaining to the worked planned in the wetland and buffer in terms of sequence or phasing that is relevant</p> <p>The Project is planned for construction following issuance of this VWP, with a goal of installation during spring of 2016. Project impacts to the wetland and buffer would occur coincident with the Project construction. The first impacts to occur would be the tree clearing for the overhead portion of the line extension. Trenching to install the underground portion would commence as soon as ground conditions permit, however all ground disturbance from trenching is not within a wetland or buffer.</p> <p>Prior to construction, all wetland and buffer areas within the Project vicinity but outside of the Project's limit of disturbance ("LOD") would be demarcated in the field with high visibility flagging and work crews would be informed of the demarcated boundary in order to avoid unintentional impacts beyond the LOD.</p> <p>Following construction, all areas of soil disturbance would be stabilized and seeded using an approved seed mix according to the Vermont Low Risk Site Handbook for Erosion Prevention and Sediment Control.</p>	

	<p>Project construction would comply with all applicable Best Management Practices (“BMPs”) developed by the Secretary pursuant to the VWR Allowed Use 6.08, as specifically identified in Section 12.4.1 and 12.4.2 below.</p>							
<p>11.5.Stormwater Design</p>	<p>List any stormwater permits obtained or applied for. Describe any stormwater and/or erosion controls proposed to prevent discharges to the wetland and buffer zone.</p> <p>No stormwater permits are anticipated for the Project, as the new impervious surface resulting from the Project is less than 5 square feet, soil disturbance would be far less than 1 acre, and construction would proceed in accordance with site plans and the Low Risk Site Handbook for Erosion Prevention and Sediment Control.</p>							
<p>11.6.Permanent Demarcation of Limits of Impact</p>	<p>Describe any plantings, fencing, signage, or other memorialization that provides permanent on-the-ground boundaries for the limits of disturbance for ongoing uses.</p> <p>As described in Section 11.4 above, all wetland and buffer areas in the vicinity of the Project but outside the areas of impact would be temporarily demarcated using high visibility flagging prior to construction and left in place for the duration of construction activities.</p> <p>Following construction, the 47 Line extension ROW would be maintained under GMP’s regular, ANR-approved line maintenance Vegetation Management Plan, most recently updated in 2013.</p> <p>Overall, maintenance activities would allow compatible shrubs and herbaceous cover to persist but would cut or trim trees within approximately 15 feet of the overhead line. As such, the limits of impact will be demarcated by the operational maintenance of the line. No additional demarcation, such as fencing or plantings, are proposed.</p>							
<p>12.Wetland and Buffer Zone Impacts</p>								
<p>12.1.Wetland Impacts</p>	<p>Summarize the square footage of impact in the appropriate category. If more than one wetland is impacted, provide that information and use the supplemental wetland sheets.</p> <p><b>Totals</b></p> <table border="1" data-bbox="561 1297 1383 1398"> <tr> <td>Wetland Fill</td> <td>s.f.</td> </tr> <tr> <td>Temporary Wetland Impact</td> <td>s.f.</td> </tr> <tr> <td>Other Permanent Wetland Impact</td> <td>970 s.f.</td> </tr> </table> <p>Other permanent wetland impact of 970 square feet of tree clearing is proposed.</p> <p>Describe in detail the proposed impact.</p> <p>No wetland fill or temporary wetland impacts are proposed. Permanent wetland impacts, from forest to shrub cover conversion, would include tree cutting on 970 square feet of wetland area as shown on the Wetland Impact Exhibit (Attachment 2).</p>	Wetland Fill	s.f.	Temporary Wetland Impact	s.f.	Other Permanent Wetland Impact	970 s.f.	
Wetland Fill	s.f.							
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Other Permanent Wetland Impact	970 s.f.							
<p>12.2.Buffer Zone Impacts</p>	<p>Summarize the square footage of impact in the appropriate category. If more than one wetland is impacted, provide that information and use the supplemental wetland sheets.</p> <p><b>Totals</b></p> <table border="1" data-bbox="561 1877 1383 1944"> <tr> <td>Temporary Buffer Impact</td> <td>s.f.</td> </tr> <tr> <td>Permanent Buffer Impact</td> <td>6,877 s.f.</td> </tr> </table> <p>Permanent buffer impact of 6,877 square feet of tree clearing and installation</p>	Temporary Buffer Impact	s.f.	Permanent Buffer Impact	6,877 s.f.			
Temporary Buffer Impact	s.f.							
Permanent Buffer Impact	6,877 s.f.							

of 2 new poles is proposed.

Describe in detail the proposed impact.

No wetland buffer temporary impacts are proposed. Permanent wetland buffer impacts would include tree cutting on 6,877 square feet and 10 square feet of earth disturbance/fill for the placement of 2 new utility poles, as shown on the Wetland Impact Exhibit (Attachment 2).

The 10 square feet of earth disturbance occurs within the 6,877 square feet of tree clearing, and as such is calculated as a total of 6,877 square feet here. The permit fee calculation accounts for the total wetland and buffer zone clearing as well as the 10 square feet of buffer impact from the pole placement separately.

12.3.Cumulative Impacts

List any potential cumulative or ongoing, direct and indirect impacts on the functions of the wetland that could result from the proposed project.

Following the construction-phase impacts to the wetland and buffer, the areas of impact would be maintained in an herbaceous or scrub-shrub cover condition through periodic tree trimming or cutting as necessary to maintain an approximately 15 foot cleared area on either side of the 47 Line extension.

12.4.Avoidance and Minimization

Please refer to Section 9.5b of the rules on Mitigation Sequencing for this section.

12.4.1. Avoidance

Can the proposed activity be practicably located outside the wetland/buffer zone, or on another site owned or controlled by the applicant or reasonably available to satisfy the basic project purpose? If not, indicate why. This answer should include any examination of alternatives that you have explored including using other properties, requesting easements, and altering the project design.

The Applicant has conducted due diligence to avoid impacts to the subject wetland and other natural resources to the extent practicable, including a review of alternative routes to extend the Line 47 distribution service. The alternative routes pursued by GMP during preliminary planning are located to the north of Eastham Road, however the landowner to the north of Eastham Road would not grant a ROW easement to GMP.

Where it was determined that impacts would be unavoidable due to Project site constraints (which are primarily parcel size, location of the wetland complex in proximity to Eastham Road, adjacent landowners unwilling to accommodate Project ROW on their lands), a VT DEC Wetlands Program site visit was initiated to review the site and potential impacts, and identify any potential further avoidance measures if applicable. From this input, the final proposed design avoids impacts to the onsite wetlands where practicable and feasible to meet the Project purpose.

In particular, the Project has avoided impacts to onsite wetlands:

- Repeated outreach to the neighboring landowner to the north of Eastham Road to inquire if the Project could be constructed parallel to Eastham Road to the north to try and avoid wetland and buffer impacts;
- Designing the Project to parallel Eastham Road as close as possible in order to avoid impacts to the undisturbed portion of the wetland complex further to the south;
- New pole locations for the 47 Line would avoid being placed in wetlands;
- Pre-construction demarcation of wetland and buffer areas not covered under this permit application to avoid unintentional impacts during construction;
- Construction equipment and machinery would work from Eastham Road, so equipment access, compaction or soil disturbance in the Project area are avoided; and

- All Project and material staging would avoid wetlands and buffers.

<p>12.4.2. Minimization</p>	<p>If the proposed activity cannot practicably be located outside the wetland/buffer zone, have all practicable measures have been taken to avoid adverse impacts on protected functions? Please include any information on on-site alternatives that have been examined; minimizing the size and scope of the project to avoid impacts; or relocating portions of the project to avoid impacts</p> <p>The Project has been planned so that construction and operation would be as low impact as possible:</p> <ul style="list-style-type: none"> <li>• Project will comply with all applicable practices identified in Allowed Use 6.08 Best Management Practices for Repair and Maintenance of Overhead Utilities: <ul style="list-style-type: none"> <li>○ 2.a: See detailed avoidance and minimization measures included in Section 12.4.1 and 12.4.2 herein;</li> <li>○ 2.c: All invasive plant control would occur in compliance with GMP’s Vegetation Management Plan (2013);</li> <li>○ 2.d.i: Compatible vegetation (ie shrubs and sapling trees would be allowed to persist in the ROW, and cleared only if/when a threat of interference or damage to Project infrastructure occurs;</li> <li>○ 2.d.ii: Trees cut for the Project would be flush cut at ground surface (ie no stumping, grubbing, or other ground disturbance resulting from tree clearing), and woody debris would be chipped at the roadside and removed, and any woody debris that cannot feasibly be chipped would be bucked and placed in upland locations onsite;</li> <li>○ 2.d.iii: work within wetland and buffer areas would be completed by hand tools, including chainsaws; all work requiring heavy equipment would occur from Eastham Road;</li> <li>○ 2.e.i: All Project access by heavy equipment would occur from the existing town roadway of Eastham Road;</li> <li>○ 2.f: Project construction activities will comply with BMPs contained in the Low Risk Site Handbook</li> <li>○ 2.h: All refueling would occur outside of wetland buffer areas, including the portion of the wetland buffer which overlaps Eastham Road;</li> </ul> </li> <li>• Design has been revised to narrow the proposed cleared corridor along the overhead portion of the Project to a width of only 15 feet on either side of the line, which is the minimum corridor width for safety and operation of the line;</li> <li>• No Project impacts, including a cleared ROW corridor, to the north side of Eastham Road;</li> <li>• Compatible shrubs and natural revegetation will be allowed to regrow in the ROW; ongoing maintenance would be conducted in accordance with GMP’s BMPs;</li> <li>• Impacts to the wetland and buffer are minimized by designing the Project parallel to the existing disturbed road corridor of Eastham Road, minimizing the Project’s overall impacts to the wetland complex;</li> <li>• Fill impacts are restricted to the installation of only 2 new poles .within a wetland buffer.</li> </ul>	
<p>12.4.3. Mitigation</p>	<p>If avoidance of adverse effects on protected functions cannot be practically achieved, has the proposed activity has been planned to minimize adverse impacts on the protected functions and a plan has been developed for the prompt restoration of any adverse impacts on protected functions? Include any information on best management practices to be used for the project both for the initial construction and ongoing use. Also include any proposed restoration of temporary impacts, previously disturbed wetland or buffer zones or proposed conservation that are being used to offset the proposed impacts.</p>	

	As described in 12.4.2, the Project has been designed to mitigate against adverse impacts through avoidance and minimization of effects on Class II wetland and buffer functions. Operation of the Project is expected to result in a minimal decrease in wetland functional capacity or area. As such, no additional mitigation is proposed.	
12.4.4. Compensation	<p>Please refer to Section 9.5c of the rules for compensation, which is appropriate when the project will result in an undue adverse impact. If compensation is proposed please include a summary here.</p> <p>Since the proposed Project has avoided, minimized, and mitigated against impacts to the onsite Class II wetland and buffer functions to the extent feasible and still meet the Project purpose (and be constructible and operable), no compensation is proposed beyond the permit fee as calculated based on the wetland and buffer impact areas (see Section 12.2).</p>	
13. Supporting materials	Where appropriate list the accompanying material by title, author, date and last revision date. Submit these documents and plans with the application.	
13.1. Location map	<p>Provide a project location map that is 8 ½" x 11" and reproducible in black and white. An Environmental Interest Locator Map is appropriate using the USGS topography map base layer, roads, and VSWI wetlands at minimum.</p> <p>See the Location Map in Attachment 1.</p>	
13.2. Site Plans	<p>List by title, author, date and last revision date. Plans should include wetland delineation and buffer zones, limits of disturbance, erosion controls, building envelopes and permanent memorialization.</p> <p><b>Title:</b> Young Line Ext – Line 47 Pole #69 - #73  <b>Author:</b> GMP  <b>Date:</b> September 24, 2015  (See Young Line Extension- Line 47 Site Plan Sketch, Attachment 4)</p> <p><b>Title:</b> Wetland Impact Exhibit  <b>Author:</b> VHB  <b>Date:</b> January 19, 2016  (See Natural Resources Map, Attachment 3)</p>	
13.3. ACOE Delineation Forms	<p>List by author, location, and date. Required only for Individual Permits.</p> <p><b>Author:</b> VHB Staff (O. McEnroe)  <b>Location:</b> VHB's Study Area (Lat/Long on forms)  <b>Date:</b> November 16, 2015</p> <p>ACOE Delineation Data Forms are included in Attachment 7.</p>	
13.4. Other Supporting Documents	<p>Provide any other documentation that supports the application. List photographs; easements; agreements; may include a GIS-compatible wetland submittal for determinations; etc.</p> <p>Attachment 1 - Site Location Map (VHB)  Attachment 2 - Wetland and Buffer Impact Exhibit (VHB)  Attachment 3 – Natural Resources Map (VHB)  Attachment 4 – Young Line Extension- Line 47 Site Plan Sketch (GMP)  Attachment 5 - Project Abutter Information (information provided by GMP)  Attachment 6 – Town of Shrewsbury Tax Parcel Map (information provided by GMP)  Attachment 7 – ACOE Data Sheets</p>	
13.5. List of Abutters (Neighbors with land adjoining wetland or buffer zone)	<p>Attach list of names and mailing addresses or submit as word mailing document.</p> <p>Abutting landowners of the proposed Project Impacts will be notified by the Applicant when the application is determined to be technically complete. There are 8 abutters to the Project parcels. The list of Project abutters are provided in Attachment 5 and a partial tax map for the Town of Shrewsbury is included as Attachment 6.</p>	

<p>13.5.1. Newspaper Notification</p>	<p>If choosing the option to fulfill the notice requirement with a newspaper notice, list the newspaper to be used here. A list of names and addresses for immediately adjacent landowners (500 foot radius) of the project area is required for the List of Abutters. <b>***NOTE: The applicant will be billed directly by the newspaper you list here. Use of newspaper notification may extend the notice period, depending on when the notice posts in the newspaper.</b></p>																																					
<p>14. Check Which Functions are Present in the Subject Wetland and in the Wetland Complex.</p>	<p><b>Wetland Function Summary:</b> (if more than one wetland use supplemental wetland sheets)</p> <table border="1"> <thead> <tr> <th>Functions &amp; Values</th> <th>Subject Wetland</th> <th>Wetland Complex</th> <th>Functions &amp; Values</th> <th>Subject Wetland</th> <th>Wetland Complex</th> </tr> </thead> <tbody> <tr> <td>Flood/Storm Storage</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>RTE Species</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Surface &amp; Groundwater Protection</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>Education &amp; Research</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Fish Habitat</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>Recreation/Economic</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Wildlife Habitat</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>Open Space/Aesthetics</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Exemplary Natural Community</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Erosion Control</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table>	Functions & Values	Subject Wetland	Wetland Complex	Functions & Values	Subject Wetland	Wetland Complex	Flood/Storm Storage	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	RTE Species	<input type="checkbox"/>	<input type="checkbox"/>	Surface & Groundwater Protection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Education & Research	<input type="checkbox"/>	<input type="checkbox"/>	Fish Habitat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Recreation/Economic	<input type="checkbox"/>	<input type="checkbox"/>	Wildlife Habitat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Space/Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>	Exemplary Natural Community	<input type="checkbox"/>	<input type="checkbox"/>	Erosion Control	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
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<p>15. Coverage under Vermont General Wetland Permit</p>	<p><b>If applying for an Individual Vermont Wetland Permit or Determination, please proceed to number 16 and answer the remaining application questions.</b></p> <p><b>If applying for Coverage under the Vermont General Wetland Permit, please complete question 15.1 prior to submitting application.</b></p>																																					
<p>15.1.VWP Vermont General Permit eligibility checklist</p>	<p>If applying for coverage under the Vermont General Wetland Permit, please verify the following to complete the application:</p> <p><input type="checkbox"/>The activity qualifies as an eligible activity for coverage under the Vermont General Wetland Permit</p> <p><input type="checkbox"/>The proposed project will meet the conditions applicable to the proposed project in the Vermont Wetland General Permit</p> <p><input type="checkbox"/>The activity does not qualify as an Allowed Use under Section 6 of the Vermont Wetland Rules.</p> <p><input type="checkbox"/>The activity will not result in an undue adverse impact on protected wetland functions and values, nor does it need additional conditions to protect functions and values.</p> <p><input type="checkbox"/> All impacts have been avoided and minimized to the greatest extent possible.</p> <p><input type="checkbox"/>The wetland complex is not significant for Function 5.5 Exemplary Wetland Natural Community or 5.6 Rare, Threatened and Endangered Species Habitat.</p> <p><input type="checkbox"/>The activity is not located in or adjacent to a vernal pool, fen, or bog.</p> <p><input type="checkbox"/>The wetland is not at or above 2,500' in elevation (headwaters wetland).</p>																																					

- The project is not located in a Class I wetland or associated buffer zone.
- The activity is not an as-built project that constitutes a violation of the Vermont Wetland Rules.

**Stop here if applying for Coverage under the Vermont General Wetland Permit**

**Complete the following Functions and Values checklist if applying for an Individual Wetland Permit and/or a Wetland Determination**

**Functions and Values**

For each Function and Value, first evaluate the entire wetland or **wetland complex** and check all that apply. Secondly, evaluate how the wetland in the project area contributes to that function. Thirdly explain how the project will not result in adverse impacts to this function. Include any information on specific avoidance and minimization measures.

If more than one wetland complex is involved, use the Supplemental Wetland Forms.

**16. Storage for Flood Water and Storm Runoff**

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
  - Constricted outlet or no outlet and an unconstricted inlet.
  - Physical space for floodwater expansion and dense, persistent, emergent vegetation or dense woody vegetation that slows down flood waters or stormwater runoff during peak flows and facilitates water removal by evaporation and transpiration.
  - If a stream is present, its course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.
  - Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.
  - Hydrologic or hydraulic study indicates wetland attenuates flooding.

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.
  - Significant flood storage capacity upstream of the wetland, and the wetland in question provides this function at a negligible level in comparison to upstream storage (unless the upstream storage is temporary such as a beaver impoundment).
  - Wetland is contiguous to a major lake or pond that provides storage benefits independently of the wetland.
  - Wetland's storage capacity is created primarily by recent beaver dams or other temporary structures.



	<p><input type="checkbox"/> Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.</p> <p><input checked="" type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> level.</p> <p><input type="checkbox"/> History of downstream flood damage to public or private property.</p> <p><input type="checkbox"/> Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by a loss or reduction of the water storage function.</p> <p><input type="checkbox"/> 1. Developed public or private property.</p> <p><input type="checkbox"/> 2. Stream banks susceptible to scouring and erosion.</p> <p><input type="checkbox"/> 3. Important habitat for aquatic life.</p> <p><input checked="" type="checkbox"/> The wetland is large in size and naturally vegetated.</p> <p><input checked="" type="checkbox"/> Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.</p> <p><input type="checkbox"/> 1. A large amount of impervious surface in urbanized areas.</p> <p><input type="checkbox"/> 2. Relatively impervious soils.</p> <p><input checked="" type="checkbox"/> 3. Steep slopes in the adjacent areas.</p>	
<p>16.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland and complex is located in a large flat area that is naturally vegetated and has physical space for floodwater.</p>	
<p>16.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>Wetland impact would be minimal and would not constrict or hinder flow through the wetland. Unavoidable impacts are minimized, as described in Section 12. As such, no undue adverse impact to wetlands or buffers will result from the project.</p>	
<p>17. Surface and Ground Water Protection</p>	<p><input checked="" type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</p> <p><input type="checkbox"/> Constricted or no outlets.</p> <p><input checked="" type="checkbox"/> Low water velocity through dense, persistent vegetation.</p> <p><input checked="" type="checkbox"/> Hydroperiod permanently flooded or saturated.</p> <p><input checked="" type="checkbox"/> Wetlands in depositional environments with persistent vegetation wider than 20 feet.</p> <p><input type="checkbox"/> Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.</p> <p><input type="checkbox"/> Presence of seeps or springs.</p> <p><input type="checkbox"/> Wetland contains a high amount of microtopography that</p>	

	<p>helps slow and filter surface water.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Position in the landscape indicates the wetland is a headwaters area.</li> <li><input checked="" type="checkbox"/> Wetland is adjacent to surface waters.</li> <li><input type="checkbox"/> Wetland recharges a drinking water source.</li> <li><input type="checkbox"/> Water sampling indicates removal of pollutants or nutrients.</li> <li><input type="checkbox"/> Water sampling indicates retention of sediments or organic matter.</li> <li><input type="checkbox"/> Fine mineral soils and alkalinity not low.</li> <li><input type="checkbox"/> The wetland provides an obvious filter between surface water or ground water and land uses that may contribute point or nonpoint sources of sediments, toxic substances or nutrients to the wetland, such as: steep erodible slopes; row crops; dumps; areas of pesticide, herbicide or fertilizer application; feed lots; parking lots or heavily traveled road; and septic systems.</li> </ul> <p>If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> level.             <ul style="list-style-type: none"> <li><input type="checkbox"/> Presence of dead forest or shrub areas in sufficient amounts to result in diminished nutrient uptake.</li> <li><input type="checkbox"/> Presence of ditches or channels that confine water and restrict contact of water with vegetation.</li> <li><input type="checkbox"/> Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.</li> <li><input type="checkbox"/> Current use in the wetland results in disturbance that compromises this function.</li> </ul> </li> <li><input checked="" type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> level.             <ul style="list-style-type: none"> <li><input type="checkbox"/> The wetland is adjacent to a well head or source protection area, and provides ground water recharge.</li> <li><input type="checkbox"/> The wetland provides flows to Class A surface waters.</li> <li><input type="checkbox"/> The wetland contributes to the protection or improvement of water quality of any impaired waters.</li> <li><input checked="" type="checkbox"/> The wetland is large in size and naturally vegetated.</li> </ul> </li> </ul>	
<p>17.1.Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland contributes hydrology to the wetland complex through conveyance of groundwater discharge, is large and natural vegetated with a mix of PFO, PSS, and PEM vegetation.</p>	

<p>17.2.Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>Unavoidable impacts are minimized, as described in Section 12. As such, no undue adverse impact to wetlands or buffers will result from the project.</p>	
<p>18. Fish Habitat</p>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</li> <li><input checked="" type="checkbox"/> Contains woody vegetation that overhangs the banks of a stream or river and provides any of the following: shading that controls summer water temperature; cover including refuges created by overhanging branches or undercut banks; source of terrestrial insects as fish food; or streambank stability.</li> <li><input checked="" type="checkbox"/> Provides spawning, nursery, feeding or cover habitat for fish (documented or professionally judged). Common habitat includes deep marsh and shallow marsh associates with lakes and streams, and seasonally flooded wetlands associated with streams and rivers.</li> <li><input type="checkbox"/> Documented or professionally judged spawning habitat for northern pike.</li> <li><input type="checkbox"/> Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.</li> <li><input checked="" type="checkbox"/> The wetland is located along a tributary that does not support fish, but contributes to a larger body of water that does support fish. The tributary supports downstream fish by providing cooler water, and food sources.</li> </ul>	
<p>18.1.Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The subject wetland contains areas of overhanging woody vegetation, is in a headwaters location as a contributing water to Mill River, and fish were observed during delineation efforts in the stream which flows through the subject wetland.</p>	
<p>18.2.Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>Unavoidable impacts are minimized, as described in Section 12. As such, no undue adverse impact to wetlands or buffers will result from the project.</p>	
<p>19. Wildlife Habitat</p>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</li> <li><input type="checkbox"/> Provides resting, feeding staging or roosting habitat to support waterfowl migration, and feeding habitat for wading birds. Good habitats for these species include open water wetlands.</li> <li><input checked="" type="checkbox"/> Habitat to support one or more breeding pairs or broods of waterfowl including all species of ducks, geese, and swans. Good habitats for these species include open water habitats adjacent shallow marsh, deep marsh, shrub wetland, forested wetland, or naturally vegetated buffer</li> </ul>	

zone.

- Provides a nest site, a buffer for a nest site or feeding habitat for wading birds including but not limited to: great blue heron, black-crowned night heron, green-backed heron, cattle egret, or snowy egret. Good habitats for these species include open water or deep marsh adjacent to forested wetlands, or standing dead trees.
- Supports or has the habitat to support one or more breeding pairs of any migratory bird that requires wetland habitat for breeding, nesting, rearing of young, feeding, staging roosting, or migration, including: Virginia rail, common snipe, marsh wren, American bittern, northern water thrush, northern harrier, spruce grouse, Cerulean warbler, and common loon.
- Supports winter habitat for white-tailed deer. Good habitats for these species include softwood swamps. Evidence of use includes deer browsing, bark stripping, worn trails, or pellet piles.
- Provides important feeding habitat for black bear, bobcat, or moose based on an assessment of use. Good habitat for these types of species includes wetlands located in a forested mosaic.
- Has the habitat to support muskrat, otter or mink. Good habitats for these species include deep marshes, wetlands adjacent to bodies of water including lakes, ponds, rivers and streams.
- Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an adult beaver population.
- Provides the following habitats that support the reproduction of Uncommon Vermont amphibian species including:
  - 1. Wood Frog, Jefferson Salamander, Blue-spotted Salamander, or Spotted Salamander. Breeding habitat for these species includes vernal pools and small ponds.
  - 2. Northern Dusky Salamander and the Spring Salamander. Habitat for these species includes headwater seeps, springs, and streams.
  - 3. The Four-toed salamander; Fowler's Toad; Western or Boreal Chorus frog, or other amphibians found in Vermont of similar significance.
- Supports or has the habitat to support significant populations of Vermont amphibian species including, but not limited to Pickerel Frog, Northern Leopard Frog, Mink Frog, and others found in Vermont of similar significance. Good habitat for these types of species includes large marsh systems with open water components.
- Supports or has the habitat to support populations of uncommon Vermont reptile species including: Wood Turtle,

Northern Map Turtle, Eastern Musk Turtle, Spotted Turtle, Spiny Softshell, Eastern Ribbonsnake, Northern Watersnake, and others found in Vermont of similar significance.

- Supports or has the habitat to support significant populations of Vermont reptile species, including Smooth Greensnake, DeKay's Brownsnake, or other more common wetland-associated species.
- Meets four or more of the following conditions indicative of wildlife habitat diversity:
  - 1. Three or more wetland vegetation classes (greater than 1/2 acre) present including but not limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog;
  - 2. The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp;
  - 3. Located adjacent to a lake, pond, river or stream;
  - 4. Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land;
  - 5. Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water;
  - 6. One of the following:
    - i. hydrologically connected to other wetlands of different dominant classes or open water within 1 mile;
    - ii. hydrologically connected to other wetlands of same dominant class within 1/2 mile;
    - iii. within 1/4 mile of other wetlands of different dominant classes or open water, but not hydrologically connected;
- Wetland or wetland complex is owned in whole or in part by state or federal government and managed for wildlife and habitat conservation; and
- Contains evidence that it is used by wetland dependent wildlife species.

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.
  - The wetland is small in size for its type and does not represent fugitive habitat in developed areas (vernal pools

	<p>and seeps are generally small in size, so this does not apply).</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The surrounding land use is densely developed enough to limit use by wildlife species (with the exception of wetlands with open water habitat). Can be negated by evidence of use.</li> <li><input type="checkbox"/> The current use in the wetland results in frequent cutting, mowing or other disturbance.</li> <li><input type="checkbox"/> The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.</li> <li><input checked="" type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> level.             <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The wetland complex is large in size and high in quality.</li> <li><input checked="" type="checkbox"/> The habitat has the potential to support several species based on the assessment above.</li> <li><input type="checkbox"/> Wetland is associated with an important wildlife corridor.</li> <li><input type="checkbox"/> The wetland has been identified as a locally important wildlife habitat by an ANR Wildlife Biologist.</li> </ul> </li> </ul>	
<p>19.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>The wetland is large in size, largely undisturbed, contains areas of various vegetation cover type and hydroperiod which provides a variety of potential wildlife habitats, and the wetland is adjacent to a stream.</p>	
<p>19.2. Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>Unavoidable impacts are avoided and minimized, as described in Section 12. As such, no undue adverse impact to wetlands or buffers will result from the project.</p>	
<p>20. Exemplary Wetland Natural Community</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.             <ul style="list-style-type: none"> <li><input type="checkbox"/> Wetlands that are identified as high quality examples of Vermont's natural community types recognized by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department, including rare types such as dwarf shrub bogs, rich fens, alpine peatlands, red maple-black gum swamps and the more common types including deep bulrush marshes, cattail marshes, northern white cedar swamps, spruce-fir-tamarack swamps, and red maple-black ash seepage swamps are automatically significant for this function.</li> </ul> </li> </ul> <p>The wetland is also likely to be significant if any of the following conditions are met:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Is an example of a wetland natural community type that has been identified and mapped by, or meets the ranking and mapping standards of, the Natural Heritage Information Project of the Vermont Fish and Wildlife Department.</li> <li><input type="checkbox"/> Contains ecological features that contribute to Vermont's</li> </ul>	

	<p>natural heritage, including, but not limited to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Deep peat accumulation reflecting a long history of wetland formation;</li> <li><input type="checkbox"/> Forested wetlands displaying very old trees and other old growth characteristics;</li> <li><input type="checkbox"/> A wetland natural community that is at the edge of the normal range for that type;</li> <li><input type="checkbox"/> A wetland mosaic containing examples of several to many wetland community types; or</li> <li><input type="checkbox"/> A large wetland complex containing examples of several wetland community types.</li> </ul> <p>List species or communities of concern:</p>	
<p>20.1.Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>N/A</p>	
<p>20.2.Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>N/A</p>	
<p>21. Rare, Threatened, and Endangered Species Habitat</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</li> <li><input type="checkbox"/> Wetlands that contain one or more species on the federal or state threatened or endangered lists, as well as species that are rare in Vermont, are automatically significant for this function.</li> </ul> <p>The wetland is also likely to be significant if any of the following apply:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> There is credible documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;</li> <li><input type="checkbox"/> There is credible documentation that threatened or endangered species have been present in past 10 years;</li> <li><input type="checkbox"/> There is credible documentation that the wetland provides important habitat for any species listed as rare in Vermont (S1 or S2 ranks), state historic (SH rank), or rare to uncommon globally (G1, G2, or G3 ranks) by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department;</li> <li><input type="checkbox"/> There is credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).</li> </ul> <p>List name of species and ranking:</p>	
<p>21.1.Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p>	

	N/A	
21.2.Statement of no adverse impact	Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function. N/A	
22. Education and Research in Natural Sciences	<input type="checkbox"/> Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function. <ul style="list-style-type: none"> <li><input type="checkbox"/> Owned by or leased to a public entity dedicated to education or research.</li> <li><input type="checkbox"/> History of use for education or research.</li> <li><input type="checkbox"/> Has one or more characteristics making it valuable for education or research.</li> </ul>	
22.1.Subject Wetland	Please explain how the subject wetland contributes to the function listed above N/A	
22.2.Statement of no undue adverse impact	Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function. N/A	
23. Recreational Value and Economic Benefits	<input type="checkbox"/> Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function. <ul style="list-style-type: none"> <li><input type="checkbox"/> Used for, or contributes to, recreational activities.</li> <li><input type="checkbox"/> Provides economic benefits.</li> <li><input type="checkbox"/> Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.</li> <li><input type="checkbox"/> Used for harvesting of wild foods.</li> </ul> Comments:	
23.1.Subject Wetland	Please explain how the subject wetland contributes to the function listed above N/A	
23.2.Statement of no undue adverse impact	Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function. N/A	
24. Open Space and Aesthetics	<input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function. <ul style="list-style-type: none"> <li><input type="checkbox"/> Can be readily observed by the public; and                         <ul style="list-style-type: none"> <li><input type="checkbox"/> Possesses special or unique aesthetic qualities; or</li> <li><input type="checkbox"/> Has prominence as a distinct feature in the surrounding landscape;</li> </ul> </li> <li><input type="checkbox"/> Has been identified as important open space in a municipal,</li> </ul>	



	<p>regional or state plan.</p> <p>Comments:</p>	
<p>24.1.Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>N/A</p>	
<p>24.2.Statement of no undue adverse impact</p>	<p>Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.</p> <p>N/A</p>	
<p>25.Erosion Control through Binding and Stabilizing the Soil</p>	<p><input checked="" type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.</p> <p><input checked="" type="checkbox"/> Erosive forces such as wave or current energy are present and any of the following are present as well:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.</li> <li><input checked="" type="checkbox"/> Good interspersion of persistent emergent vegetation and water along course of water flow.</li> <li><input checked="" type="checkbox"/> Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.</li> </ul> <p>What type of erosive forces are present:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Lake fetch and waves</li> <li><input checked="" type="checkbox"/> High current velocities:</li> <li><input type="checkbox"/> Water level influenced by upstream impoundment</li> </ul> <p>If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.</p> <p><input type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>lower</i> level.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.</li> </ul> <p><input checked="" type="checkbox"/> Check box if any of the following conditions apply that may indicate the wetland provides this function at a <i>higher</i> level.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The stream contains high sinuosity.</li> <li><input type="checkbox"/> Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.</li> </ul>	
<p>25.1.Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p> <p>Wetland is located along stream a perennial stream and has dense persistent woody vegetation.</p>	
<p>25.2.Statement of no undue</p>	<p>Please explain how the proposed project will not result in any undue adverse impact to this function. Include any avoidance and minimization measures</p>	

<p>adverse impact</p>	<p>relevant to this function.</p> <p>Unavoidable impacts are avoided and minimized, as described in Section 12. As such, no undue adverse impact to wetlands or buffers will result from the project.</p>	
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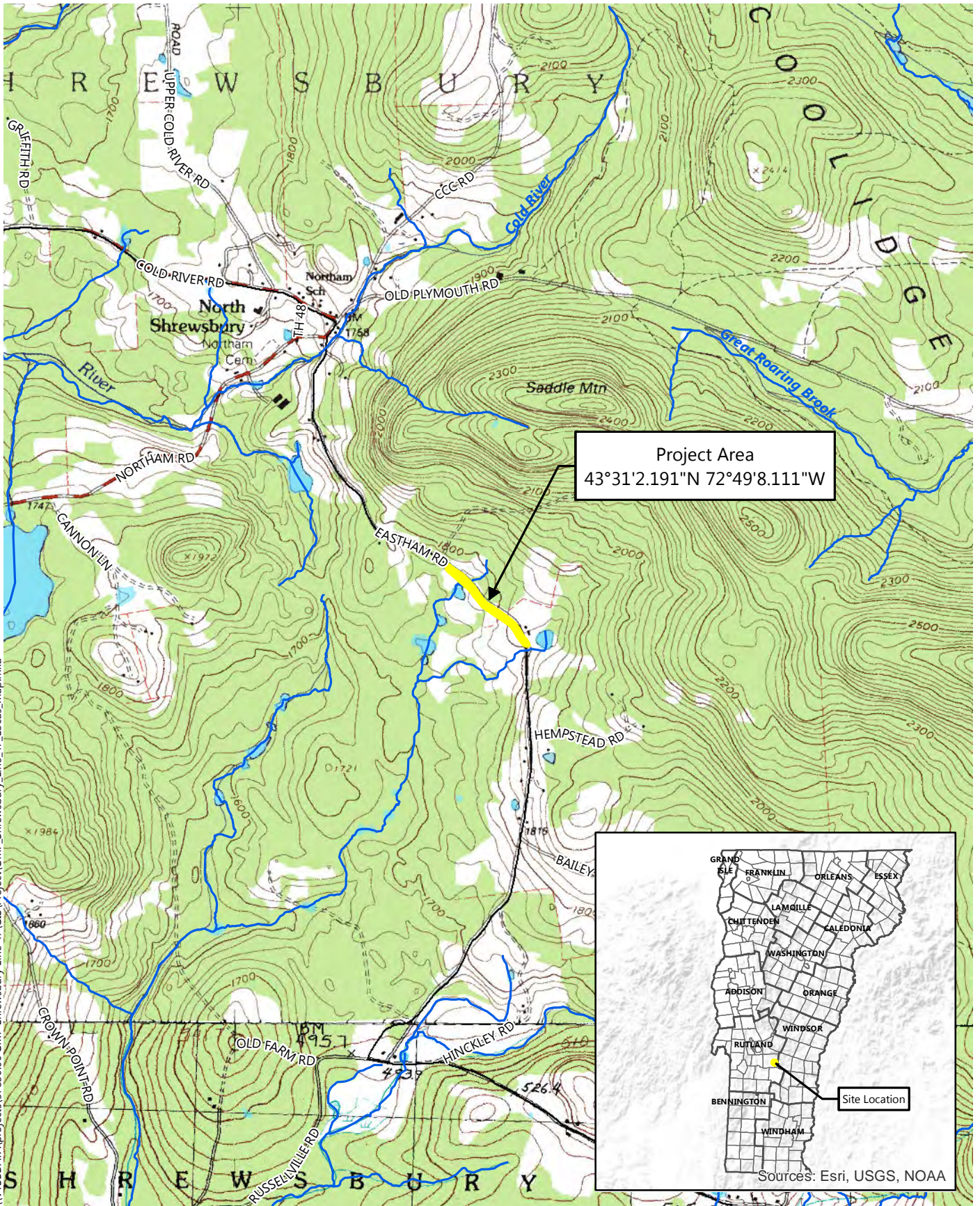
Creation	s.f.	Conservation	s.f.	Creation	s.f	Conservation	s.f
<b>Reason for Mitigation:</b>	<input type="checkbox"/>	Correction of Violation	<input type="checkbox"/>	Mitigation to offset permit impacts	<input type="checkbox"/>	Voluntary	

**All Applications Should be Mailed To:**

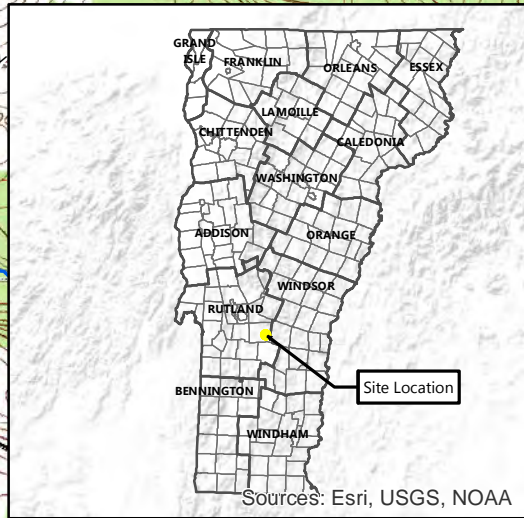
**Vermont Wetlands Program  
 Watershed Management Division  
 One National Life Drive, Main 2  
 Montpelier, VT 05620-3522**

**Staff To Complete**

<b>Wetland Project Number:</b>			
<b>Wetland Project Name:</b>		<b>DEC ID#:</b>	
<b>Date Application Received:</b>			
<b>Request for Information Date:</b>		<b>Information Received Date:</b>	
<b>Request for Information Date:</b>		<b>Information Received Date:</b>	
<b>Date Application Complete:</b>		<b>Distribution Complete Date:</b>	
<b>Notice Begin Date:</b>		<b>Notice End Date:</b>	
<b>Final Action Date:</b>		<b>Public Meeting Date:</b>	
<b>Check#</b>	<b>Check Amount</b>	<b>Date Check Received</b>	
<b>Check#</b>	<b>Check Amount</b>	<b>Date Check Received</b>	



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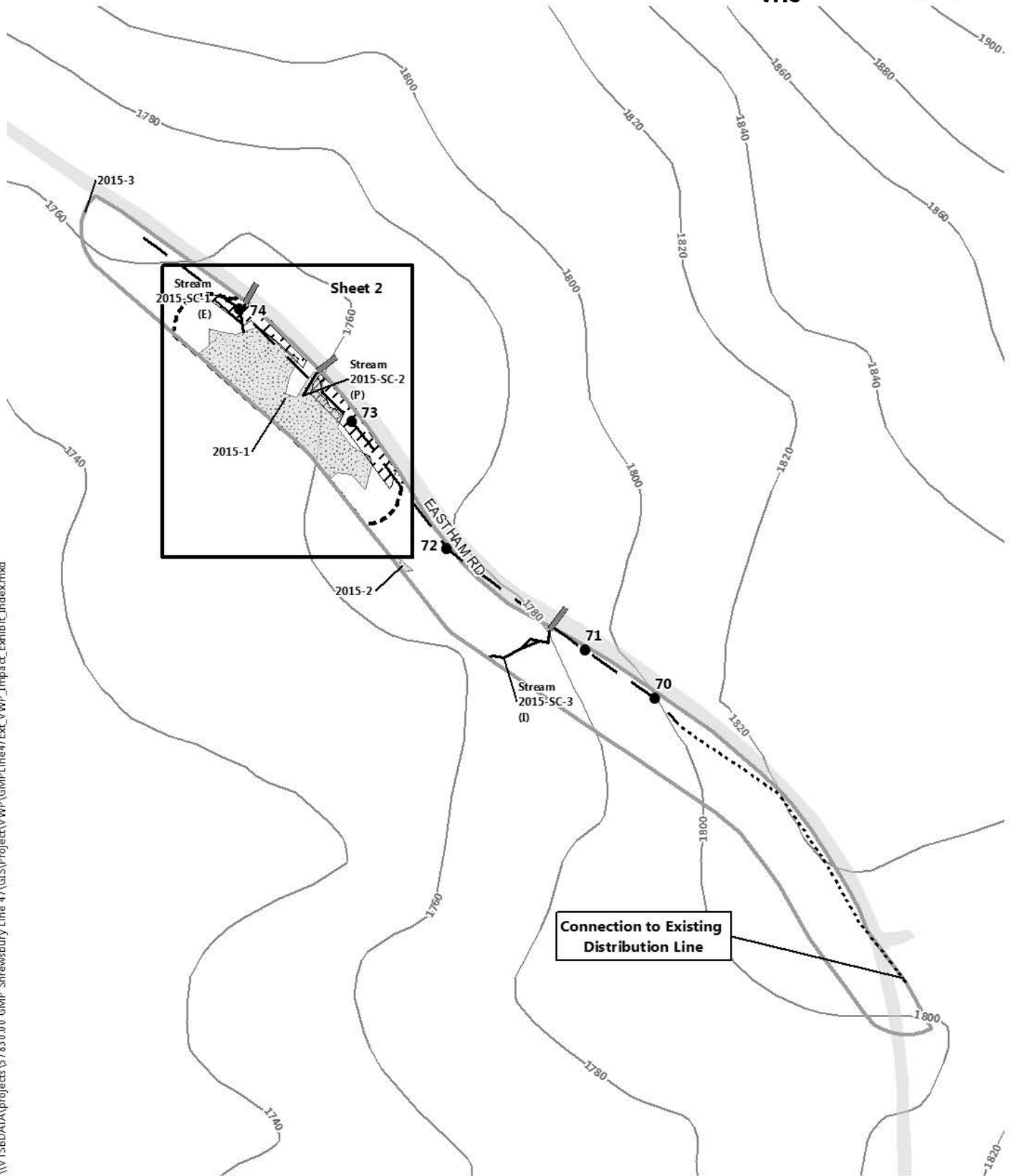
**GMP Young Line Extension - Line 47 | Shrewsbury, VT**

- Study Area (VHB)
- VHD Stream (VCGI)
- VHD Waterbody (VCGI)
- Interstate (VTrans)
- US Highway (VTrans)
- Vermont State Highway (VTrans)
- Town Road (VTrans)

**Locus Map**

Sources:  
 USGS Topo Background (1996)  
 VCGI (Vermont Center for Geographic Information - 2010)  
 VTrans (Vermont Department of Transportation - 2015)  
 VHB - 2015

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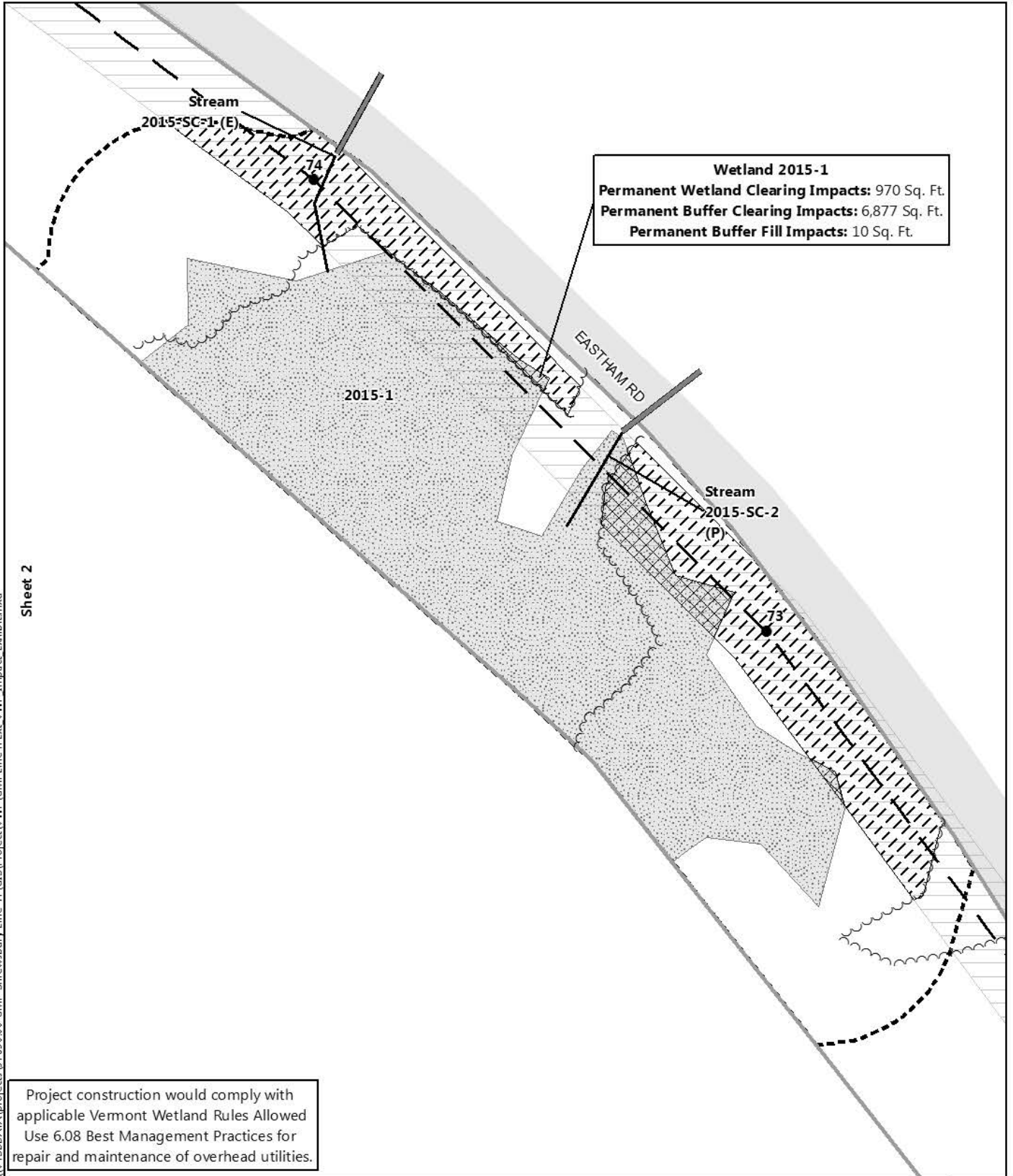


**GMP Young Line Extension - Line 47 | Shrewsbury, Vermont**

- Sheet Outline (VHB)
- Study Area (VHB)
- Proposed Structure (VHB)
- Approximate Proposed Overhead Alignment (GMP/VHB)
- Approximate Proposed Underground Alignment (GMP/VHB)
- Culvert (VHB)
- Delineated Wetland (VHB)
- Class II Wetland Buffer (VHB)
- Delineated Stream (VHB)
- Proposed Wetland Clearing (VHB)
- Proposed Wetland Buffer Clearing (VHB)
- 20ft Contour (VCGI)

**Wetland Impact Exhibit Sheet 1: Index**

Sources:  
 VCGI (Vermont Center for Geographic Information - 20ft Contour (2012)  
 GMP: 2015  
 VHB: All 2015-2016; Approximate Proposed Alignment provided by GMP and adjusted by VHB using GPS-located staking data



**Wetland 2015-1**  
 Permanent Wetland Clearing Impacts: 970 Sq. Ft.  
 Permanent Buffer Clearing Impacts: 6,877 Sq. Ft.  
 Permanent Buffer Fill Impacts: 10 Sq. Ft.

Sheet 2

Project construction would comply with applicable Vermont Wetland Rules Allowed Use 6.08 Best Management Practices for repair and maintenance of overhead utilities.

\\VTSB\DATA\Projects\57830.00.GMP.Shrewsbury.Line.47\GIS\Project\WVP\GMP\Line47\Ext.VWP\_Impact\_Exhibit.mxd



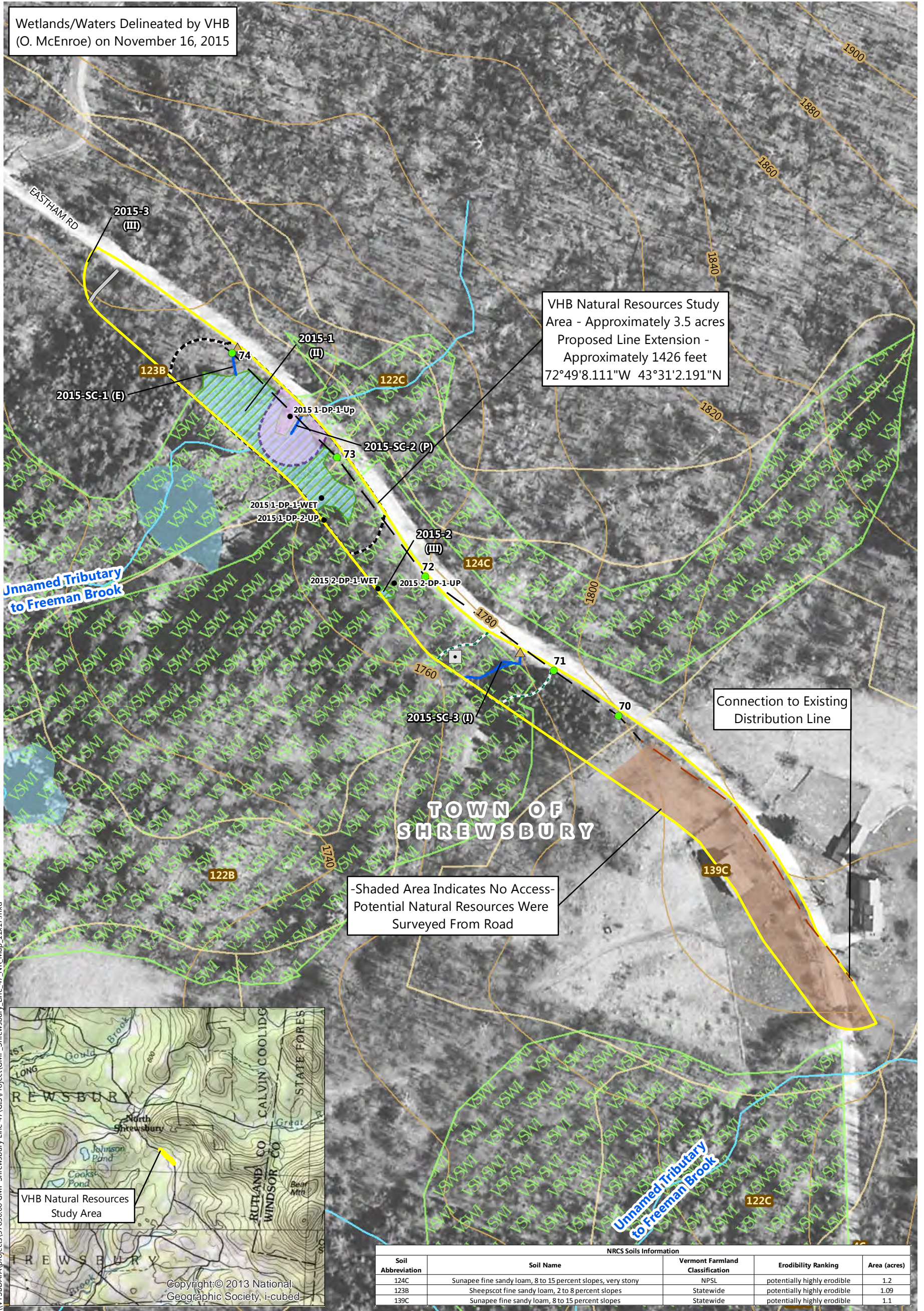
**GMP Young Line Extension - Line 47 | Shrewsbury, Vermont**

- Sheet Outline (VHB)
- Study Area (VHB)
- Proposed Structure (VHB)
- Approximate Proposed Overhead Alignment (GMP/VHB)
- Approximate Proposed Underground Alignment (GMP/VHB)
- Culvert (VHB)
- Approximate GMP ROW (VHB)
- Approximate Existing Treeline (VHB)
- Delineated Wetland (VHB)
- Class II Wetland Buffer (VHB)
- Delineated Stream (VHB)
- Proposed Wetland Clearing (VHB)
- Proposed Wetland Buffer Clearing (VHB)
- Approximate Road Surface (VHB)

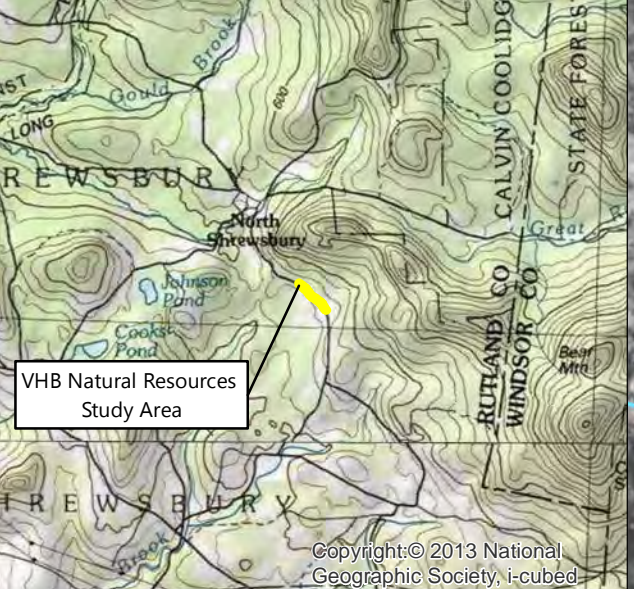
**Wetland Impact Exhibit Sheet 2**

Sources:  
 GMP: 2015  
 VHB: All 2015-2016; Approximate Proposed Alignment provided by GMP and adjusted by VHB using GPS-located staking data

Wetlands/Waters Delineated by VHB (O. McEnroe) on November 16, 2015



\\VTSEDATA\projects\57830.00 GMP Shrewsbury Line 47\GIS\Project\GMP\_Shrewsbury Line 47\_NR\_Map\_11x17.mxd



NRCS Soils Information				
Soil Abbreviation	Soil Name	Vermont Farmland Classification	Erodibility Ranking	Area (acres)
124C	Sunapee fine sandy loam, 8 to 15 percent slopes, very stony	NPSL	potentially highly erodible	1.2
123B	Sheepsfoot fine sandy loam, 2 to 8 percent slopes	Statewide	potentially highly erodible	1.09
139C	Sunapee fine sandy loam, 8 to 15 percent slopes	Statewide	potentially highly erodible	1.1



**GMP Young Line Extension - Line 47**

Shrewsbury, Vermont

- Proposed Structure (VHB)
- Delineation Datapoint (VHB)
- Bear Crossing (VT FWD)\*
- Public Well (VT ANR)\*
- Existing Foundation (VHB)
- Study Area (VHB)
- Bear Feeding (VT FWD)\*
- Private Well (VT ANR)\*
- ▲ Found Culvert (VHB)
- Delineated Wetland (VHB)
- NHI Element Occurrence (VT FWD)\*
- Ground Water Protection Area (VT ANR)\*
- Approximate Proposed Overhead Alignment (GMP)
- Proposed Class II Wetland Buffer (VHB)
- VSWI Wetland (VT ANR)
- Surface Water Protection Area (VT ANR)\*
- Approximate Proposed Underground Alignment (GMP)
- Delineated Stream (VHB)
- 100 Year Flood Zone (FEMA)\*
- Existing Driveway Centerline (VHB)
- Proposed River Corridor (VHB)
- Stream (VHD)
- Riparian Buffer (VHB)
- Deer Wintering Area (VT ANR)\*
- River Corridor (VT ANR)\*
- Waterbody (VHD)
- NRCS Soil Boundary (VCGI)
- Parcel Boundary (VCGI)\*
- 20 ft. Contour (VCGI)

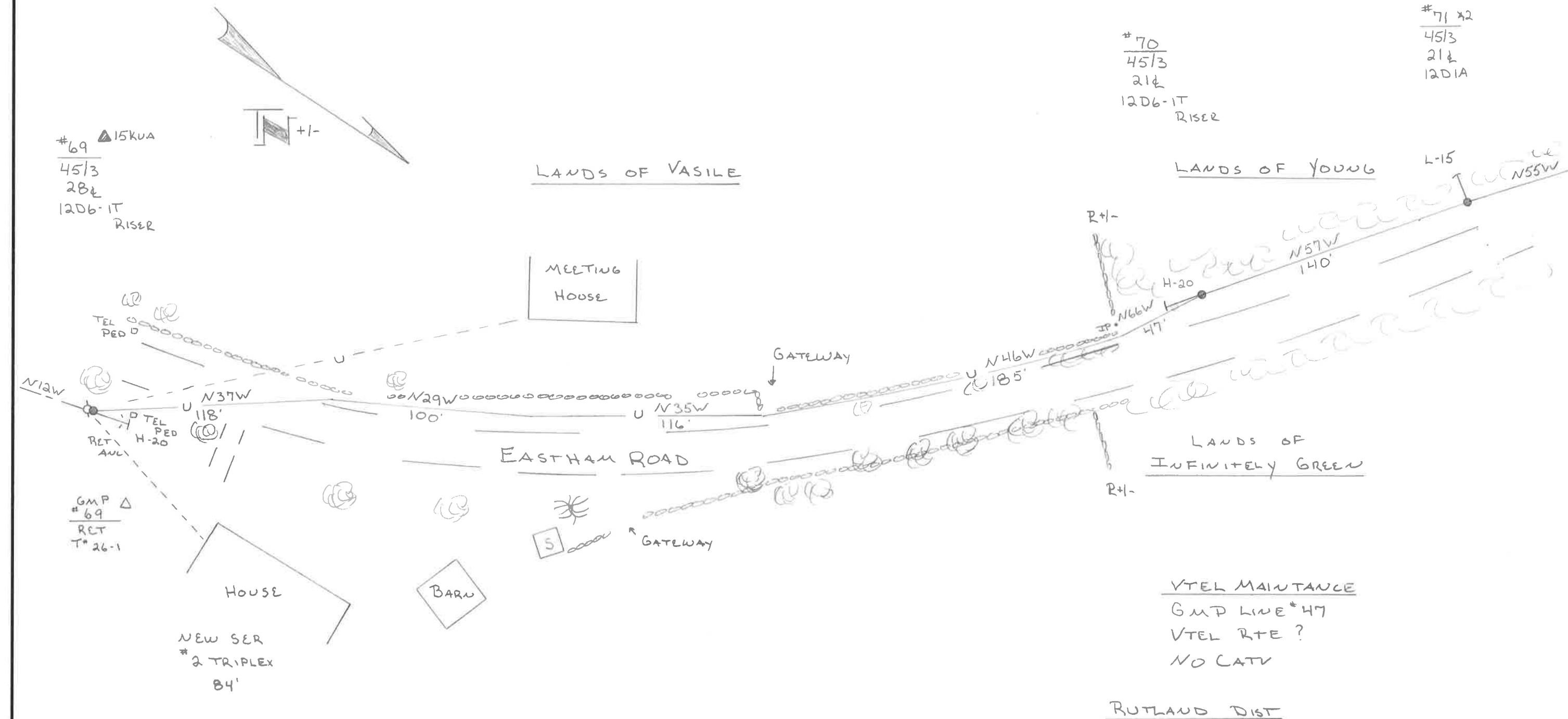
**Natural Resources Map**

Sources:  
 Background Imagery from VCGI (2011)  
 VCGI (Vermont Center for Geographic Information - Various Dates)  
 ANR (Vermont Agency of Natural Resources - Various Dates)  
 VTFW (Vermont Dept. of Fish and Wildlife - Various Dates)  
 VTrans (Vermont Dept. of Transportation - 2015)  
 GMP (Green Mountain Power Corporation - 2015)  
 VHB - All 2015-2016; Approximate Proposed Alignment Provided by GMP and adjusted by VHB using GPS-located staking data

\* Feature not present in map extent



CV 1088



#69 ▲15KVA  
 45/3  
 2B±  
 1206-IT  
 RISER

#70  
 45/3  
 21±  
 1206-IT  
 RISER

#71 x2  
 45/3  
 21±  
 1201A

LANDS OF VASILE

LANDS OF YOUNG

LANDS OF INFINITELY GREEN

EASTHAM ROAD

MEETING HOUSE

HOUSE

BAR

NEW SER  
 #2 TRIPLEX  
 84'

VTEL MAINTANCE  
 GMP LINE \*47  
 VTEL RTE?  
 NO CATV

RUTLAND DIST

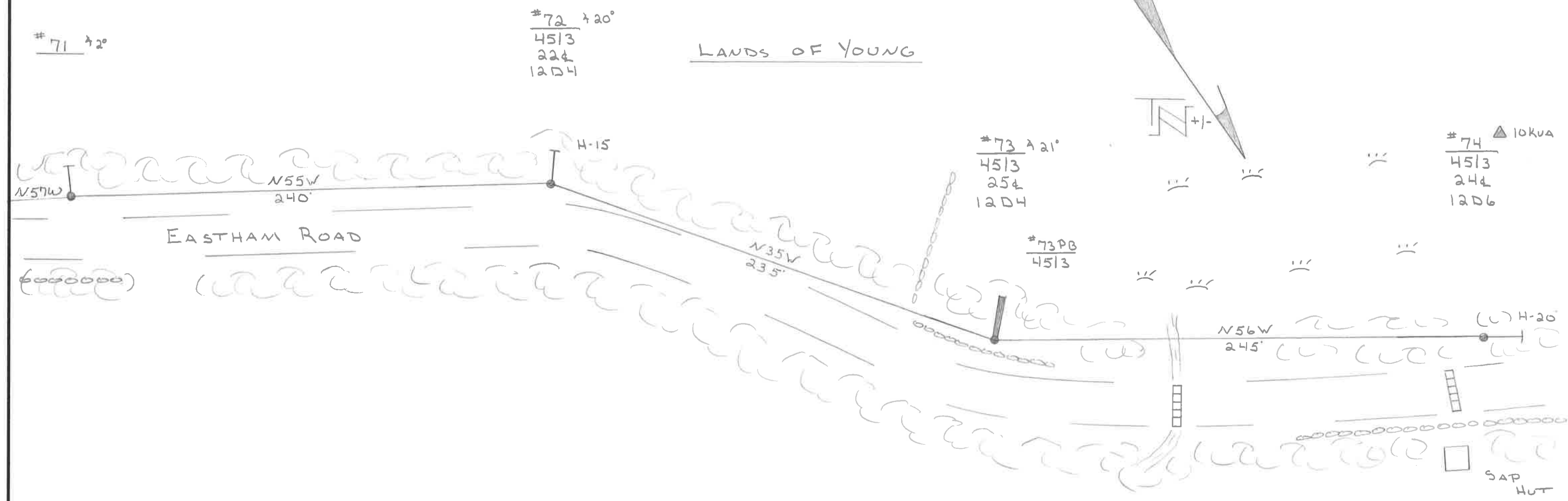
PROJECT TOTALS  
 1φ 1/0 URD PRIMARY = 566'  
 1φ 1/0 6201 POLY = 860'

SHEET DIST  
 1φ 1/0 URD PRIMARY = 566'  
 1φ 1/0 6201 POLY = 140'

FOR REFERENCE PURPOSES ONLY. NOT A SURVEY PLAT & NOT ENTIRELY TO SCALE

REVISIONS		DESCRIPTION
		YOUNG LINE EXT
		LINE 47
		POLE #69 TO #73
SHREWSBURY VT		
CENTRAL VERMONT PUBLIC SERVICE CORP.		
DRAWN BY	CHECKED BY	DATE 9/24/15
SCALE	APPROVED BY	DWG#
6	5	4
3	2	1
No.	DATE	BY

CV 1088



VTEL MAINTANCE  
 GMP LINE # 47  
 VTEL RTE # ?  
 NO CATV

RUTLAND DIST

SHEET DIST  
 1/4 1/0 6201 Poly = 720'

FOR REFERENCE PURPOSES ONLY. NOT A SURVEY PLAT & NOT ENTIRELY TO SCALE

REVISIONS	
No.	DATE BY DESCRIPTION
6	
5	
4	
3	
2	
1	

YOUNG LINE EXT  
 LINE 47  
 POLE 69 TO 74

SHREWSBURY VT

CENTRAL VERMONT PUBLIC SERVICE CORP.

DRAWN BY EFM CHECKED BY \_\_\_\_\_ DATE 9/24/15

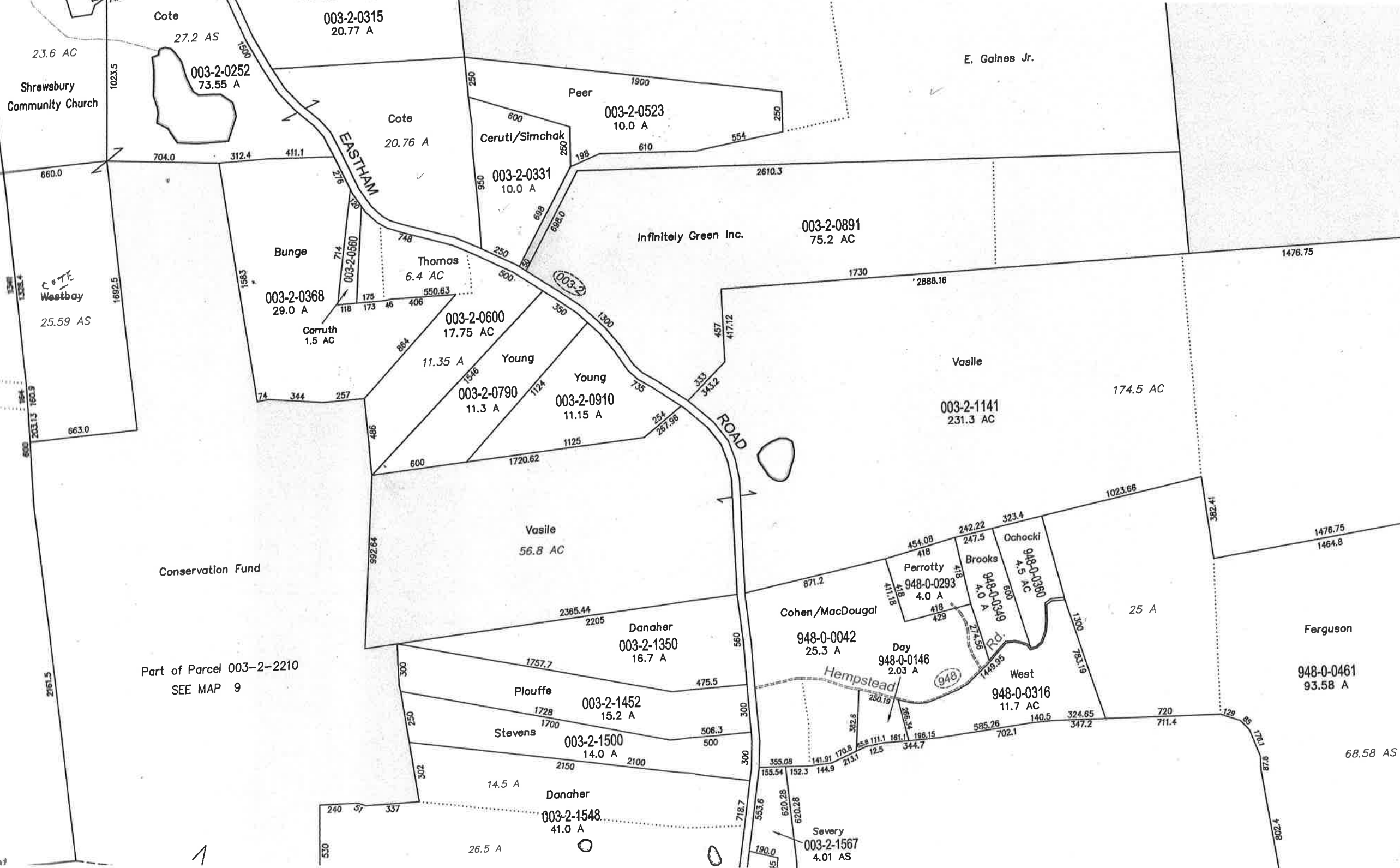
SCALE 1"=50' APPROVED BY \_\_\_\_\_ DWG# \_\_\_\_\_

**Green Mountain Power - 47 Line Extension Project**  
**Vermont Wetland Permit Application**  
**Shrewsbury, Vermont**  
**Adjoining Property Owners**  
**Prepared by: VHB (C Fenner)**  
**January 7, 2016**



<b>Property Owner</b>	<b>Mailing Address</b>	<b>City</b>	<b>State</b>	<b>Zip</b>
Thomas C. Vasile	240 Split Rock Road	Syosset	NY	11791
Infinitely Green, Inc., c/o J. Calotta	165 E 66th Street, Apartment 2F	New York	NY	10021
Brian Thomas	660 Eastham Road	Shrewsbury	VT	05738
Gillian Gaines	45 Eastham Road	Shrewsbury	VT	05738
Robin Simchak and Francis Ceruti	6715 Chapingo Road	Rio Rancho	NM	87144
Samuel and Linda Bunge	P. O. Box 288	Petersburg	AK	99833
Danny Cote	657 Northam Road	Shrewsbury	VT	05738
Conservation Fund	1655 North Fort Meyer Drive, Suite 1300	Arlington	VA	22209

Note: Property owner information supplied by Green Mountain Power



Part of Parcel 003-2-2210  
SEE MAP 9

1

68.58 AS



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2015-1-DP-1-Up

Project Site: GMP Line 47 Extension City/County: Shrewsbury/Rutland Samp. Date: 11/16/2015
Applicant/Owner: Green Mountain Power Corp. State: VT Sampling Point: 2015-1-DP-1-Up
Investigator(s): O. McEnroe Section, Township, Range: Shrewsbury
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2-8
Subregion (LRR or MLRA): LRR R Lat: 43°31'5.497"N Long: 72°49'11.293"W Datum: NAD 83
Soil Map Unit: Sheepscot fine sandy loam, 2 to 8 percent slopes NWI Class: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No Normal Circumstances? No
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? YES
Hydric Soil Present? NO
Wetland Hydrology Present? NO
Is This Sample Area Within a Wetland? NO
Remarks: Site delineation occurred outside of the growing season; Care was taken to assess vegetation from remnants; Datapoint located adjacent to wetland near wetland flag 1-13

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)
Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10)
Saturation (A3) Marl Deposits (B13) Moss Trim Lines (B16)
Water Marks (B1) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Crayfish Burrows (C8)
Drift Deposits (B3) Presence of Reduced Iron (C4) Saturation Visible on Aerial (C9)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Stunted or Stressed Plants (D1)
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2)
Inundation Visible on Aerial (B7) Other (Explain in Remarks) Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Depth (inches):
Water Table Present? Depth (inches): Wetland Hydrology Present? NO
Saturation Present? Depth (inches):
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
0.75" precip. recorded in Nov. up to day of investigation, 0.71" recorded during 7 days prior to investigation, 0.01" precip recorded on day of investigation (NOAA)
Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)
Depth Matrix Redox Features Texture Remarks
(in) Color (moist) % Color (moist) % Type1 Loc2
0-4 10YR 2/2 100 GRAVELLY VERY FINE SANDY LOAM
4-7 10YR 4/3 100 GRAVELLY SAND
7-14+ 10YR 3/4 100 SILT LOAM
1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 2Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) (LRR K, L, M)
Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)
Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)
Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy Redox (S5) Red Parent Material (F21)
Stripped Matrix (S6) 3Indicators of hydrophytic vegetation and Very Shallow Dark Surface (TF12)
Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unless Other (Explain in Remarks)
Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? NO
Remarks:

	Absolute % Cover	Dom. Sp?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30' RAD</u> )					
1. <b>Abies balsamea</b>	<b>3</b>	<b>X</b>	<b>FAC</b>	<b>Dominance Test Worksheet:</b> # Dominants OBL, FACW, FAC: <u>2</u> (A)  # Dominants across all strata: <u>3</u> (B)  % Dominants OBL, FACW, FAC: <u>67%</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
	<b>3</b>	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: <span style="float:right;">Multiply By:</span> OBL _____ x 1 = _____ FACW <u>15</u> x 2 = <u>30</u> FAC <u>3</u> x 3 = <u>9</u> FACU <u>63</u> x 4 = <u>252</u> UPL _____ x 5 = _____ Sum: <u>81</u> (A) <span style="float:right;"><u>291</u> (B)</span>  Prevalence Index = B/A = <u>3.59</u>	
<b>Sapling Stratum</b> (Plot size: <u>15' RAD</u> )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
		= Total Cover			
<b>Shrub Stratum</b> (Plot size: <u>15' RAD</u> )					
1. <b>Salix bebbiana</b>	<b>15</b>	<b>X</b>	<b>FACW</b>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is <= 3.0 <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (explain) <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Morphological Adaptations	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
	<b>15</b>	= Total Cover			
<b>Herb Stratum</b> (Plot size: <u>5' RAD</u> )					
1. <b>Solidago canadensis</b>	<b>63</b>	<b>X</b>	<b>FACU</b>	<b>Definitions of Vegetation Strata:</b>  Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).  Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.  Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.  Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.  Woody vine - All woody vines, regardless of height.	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
	<b>63</b>	= Total Cover			
<b>Woody Vines</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
		= Total Cover		Hydrophytic Vegetation Present? <u>YES</u>	

Remarks: (If observed, list morphological adaptations below).



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2015-1-DP-1-Wet

Project Site: GMP Line 47 Extension City/County: Shrewsbury/Rutland Samp. Date: 11/16/2015
Applicant/Owner: Green Mountain Power Corp. State: VT Sampling Point: 2015-1-DP-1-Wet
Investigator(s): O. McEnroe Section, Township, Range: Shrewsbury
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 8-15
Subregion (LRR or MLRA): LRR R Lat: 43°31'4.231"N Long: 72°49'10.608"W Datum: NAD 83
Soil Map Unit: Sunapee fine sandy loam, 8 to 15 percent slopes, very stony NWI Class: PEM, PSS, PFO
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No Normal Circumstances? Yes
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? YES
Hydric Soil Present? YES
Wetland Hydrology Present? YES
Is This Sample Area Within a Wetland? YES
Remarks:
Site delineation occurred outside of the growing season; Care was taken to assess vegetation from remnants; Datapoint is located near flag 1-25, adjacent to a rock wall

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (minimum of one is required; check all that apply)
Surface Water (A1) X
High Water Table (A2)
Saturation (A3) X
Water Marks (B1)
Sediment Deposits (B2)
Drift Deposits (B3)
Algal Mat or Crust (B4)
Iron Deposits (B5)
Inundation Visible on Aerial (B7)
Sparsely Vegetated Concave Surface (B8)
Secondary Indicators (minimum of two required)
Surface Soil Cracks (B6)
Drainage Patterns (B10)
Moss Trim Lines (B16)
Dry-Season Water Table (C2)
Crayfish Burrows (C8)
Saturation Visible on Aerial (C9)
Stunted or Stressed Plants (D1)
Geomorphic Position (D2)
Shallow Aquitard (D3)
Microtopographic Relief (D4)
FAC-Neutral Test (D5)

Field Observations:
Surface Water Present?
Water Table Present?
Saturation Present? X
Depth (inches): surface
Wetland Hydrology Present? YES

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
0.75" precip. recorded in Nov. up to day of investigation, 0.71" recorded during 7 days prior to investigation, 0.01" precip recorded on day of investigation (NOAA)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)
Table with columns: Depth, Matrix, Redox Features, Type, Loc, Texture, Remarks.
0-6: 10YR 2/2, 98, 7.5YR 3/4, 2, C, M, SILT LOAM
6-14: 10YR 2/2, 100, Rock refusal at 14"

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:
Histosol (A1)
Histic Epipedon (A2)
Black Histic (A3)
Hydrogen Sulfide (A4)
Stratified Layers (A5)
Depleted Below Dark Surface (A11)
Thick Dark Surface (A12)
Sandy Mucky Mineral (S1)
Sandy Gleyed Matrix (S4)
Sandy Redox (S5)
Stripped Matrix (S6)
Dark Surface (S7) (LRR R, MLRA 149B)
Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
Thin Dark Surface (S9) (LRR R, MLRA 149B)
Loamy Mucky Mineral (F1) (LRR K, L)
Loamy Gleyed Matrix (F2)
Depleted Matrix (F3)
Redox Dark Surface (F6) X
Depleted Dark Surface (F7)
Redox Depressions (F8)
Indicators for Problematic Hydric Soils3:
2 cm Muck (A10) (LRR K, L, MLRA 149B)
Coast Prairie Redox (A16) (LRR K, L, R)
5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Dark Surface (S9) (LRR K, L, M)
Polyvalue Below Surface (S8) (LRR K, L)
Thin Dark Surface (S9) (LRR K, L)
Iron-Manganese Masses (F12) (LRR K, L, R)
Piedmont Floodplain Soils (F19) (MLRA 149B)
Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Red Parent Material (F21)
Very Shallow Dark Surface (TF12)
Other (Explain in Remarks)

Restrictive Layer (if observed):
Type:
Depth (inches):
Hydric Soil Present? YES

Remarks:

	Absolute % Cover	Dom. Sp?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30' RAD</u> )					
1. <b>Abies balsamea</b>	<b>3</b>	<b>X</b>	<b>FAC</b>	Dominance Test Worksheet: # Dominants OBL, FACW, FAC: <u>3</u> (A) # Dominants across all strata: <u>4</u> (B) % Dominants OBL, FACW, FAC: <u>75%</u> (A/B)	
2. <b>Prunus serotina</b>	<b>1</b>	<b>X</b>	<b>FACU</b>		
3.					
4.					
5.					
6.					
7.					
	<b>4</b>	= Total Cover		Prevalence Index Worksheet: Total % Cover of: <u>        </u> Multiply By: <u>        </u> OBL <u>        </u> x 1 = <u>        </u> FACW <u>66</u> x 2 = <u>132</u> FAC <u>18</u> x 3 = <u>54</u> FACU <u>1</u> x 4 = <u>4</u> UPL <u>        </u> x 5 = <u>        </u> Sum: <u>85</u> (A) <u>190</u> (B) Prevalence Index = B/A = <u>2.24</u>	
<b>Sapling Stratum</b> (Plot size: <u>15' RAD</u> )					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
		= Total Cover			
<b>Shrub Stratum</b> (Plot size: <u>15' RAD</u> )					
1. <b>Spiraea alba</b>	<b>63</b>	<b>X</b>	<b>FACW</b>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is <= 3.0 <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (explain) <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Morphological Adaptations <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. <b>Alnus incana</b>	<b>3</b>		<b>FACW</b>		
3.					
4.					
5.					
6.					
7.					
	<b>66</b>	= Total Cover			
<b>Herb Stratum</b> (Plot size: <u>5' RAD</u> )					
1. <b>Solidago rugosa</b>	<b>15</b>	<b>X</b>	<b>FAC</b>	Definitions of Vegetation Strata:  Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).  Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.  Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.  Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.  Woody vine - All woody vines, regardless of height.	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
	<b>15</b>	= Total Cover			
<b>Woody Vines</b> (Plot size: <u>        </u> )					
1.					
2.					
3.					
4.					
5.					
		= Total Cover		Hydrophytic Vegetation Present? <u>YES</u>	

Remarks: (If observed, list morphological adaptations below).

**Aster sp. observed at 15%**





WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2015-1-DP-2-Up

Project Site: GMP Line 47 Extension City/County: Shrewsbury/Rutland Samp. Date: 11/16/2015
Applicant/Owner: Green Mountain Power Corp. State: VT Sampling Point: 2015-1-DP-2-Up
Investigator(s): O. McEnroe Section, Township, Range: Shrewsbury
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 8-15
Subregion (LRR or MLRA): LRR R Lat: 43°31'3.887"N Long: 72°49'10.571"W Datum: NAD 83
Soil Map Unit: Sunapee fine sandy loam, 8 to 15 percent slopes, very stony NWI Class: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No Normal Circumstances? Yes
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? NO
Hydric Soil Present? NO
Wetland Hydrology Present? NO
Is This Sample Area Within a Wetland? NO
Remarks: Site delineation occurred outside of the growing season; Care was taken to assess vegetation from remnants; Datapoint located approximately 20 feet from wetland flag 1-26, some fill sand and gravel observed

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)
Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10)
Saturation (A3) Marl Deposits (B13) Moss Trim Lines (B16)
Water Marks (B1) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Crayfish Burrows (C8)
Drift Deposits (B3) Presence of Reduced Iron (C4) Saturation Visible on Aerial (C9)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Stunted or Stressed Plants (D1)
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2)
Inundation Visible on Aerial (B7) Other (Explain in Remarks) Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5) Microtopographic Relief (D4)

Field Observations:
Surface Water Present? Depth (inches):
Water Table Present? Depth (inches):
Saturation Present? Depth (inches):
Wetland Hydrology Present? NO

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
0.75" precip. recorded in Nov. up to day of investigation, 0.71" recorded during 7 days prior to investigation, 0.01" precip recorded on day of investigation (NOAA)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)
Table with columns: Depth (in), Matrix, Color (moist), %, Redox Features (Color (moist), %, Type1, Loc2), Texture, Remarks.
0-2 10YR 7/2 100 GRAVELLY SAND
2-4 10YR 2/2 100 SILT LOAM
4-14 10YR 3/3 100 SILT LOAM Rock refusal at 14"

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) (LRR K, L, M)
Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)
Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)
Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy Redox (S5) Red Parent Material (F21)
Stripped Matrix (S6) 3Indicators of hydrophytic vegetation and Very Shallow Dark Surface (TF12)
Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unless Other (Explain in Remarks)
disturbed or problematic.

Restrictive Layer (if observed):
Type:
Depth (inches):
Hydric Soil Present? NO

Remarks:

	Absolute % Cover	Dom. Sp?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30' RAD</u> )					
1. <b>Picea rubens</b>	<b>38</b>	<b>X</b>	<b>FACU</b>	<b>Dominance Test Worksheet:</b> # Dominants OBL, FACW, FAC: <u>1</u> (A) # Dominants across all strata: <u>4</u> (B) % Dominants OBL, FACW, FAC: <u>25%</u> (A/B)	
2. <b>Prunus serotina</b>	<b>3</b>		<b>FACU</b>		
3. <b>Abies balsamea</b>	<b>3</b>		<b>FAC</b>		
4. _____					
5. _____					
6. _____					
7. _____					
	<b>44</b>	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>        </u> Multiply By: <u>        </u> OBL <u>        </u> x 1 = <u>        </u> FACW <u>1</u> x 2 = <u>2</u> FAC <u>3</u> x 3 = <u>9</u> FACU <u>59</u> x 4 = <u>236</u> UPL <u>        </u> x 5 = <u>        </u> Sum: <u>63</u> (A) <u>247</u> (B) Prevalence Index = B/A = <u>3.92</u>	
<b>Sapling Stratum</b> (Plot size: <u>15' RAD</u> )					
1. <b>Tsuga canadensis</b>	<b>15</b>	<b>X</b>	<b>FACU</b>		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
	<b>15</b>	= Total Cover			
<b>Shrub Stratum</b> (Plot size: <u>15' RAD</u> )					
1. _____				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is > 50% _____ Prevalence Index is <= 3.0 _____ Problematic Hydrophytic Vegetation <sup>1</sup> (explain) _____ Rapid Test for Hydrophytic Vegetation _____ Morphological Adaptations <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
<b>Herb Stratum</b> (Plot size: <u>5' RAD</u> )					
1. <b>Solidago canadensis</b>	<b>3</b>	<b>X</b>	<b>FACU</b>	<b>Definitions of Vegetation Strata:</b> Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH). Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height. Woody vine - All woody vines, regardless of height.	
2. <b>Onoclea sensibilis</b>	<b>1</b>	<b>X</b>	<b>FACW</b>		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
	<b>4</b>	= Total Cover			
<b>Woody Vines</b> (Plot size: _____ )					
1. _____				<b>Hydrophytic Vegetation Present?</b> <u>NO</u>	
2. _____					
3. _____					
4. _____					
5. _____					

Remarks: (If observed, list morphological adaptations below).

**Malus sp. observed at 3%**



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2015-2-DP-1-Up

Project Site: GMP Line 47 Extension City/County: Shrewsbury/Rutland Samp. Date: 11/16/2015
Applicant/Owner: Green Mountain Power Corp. State: VT Sampling Point: 2015-2-DP-1-Up
Investigator(s): O. McEnroe Section, Township, Range: Shrewsbury
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 8-15
Subregion (LRR or MLRA): LRR R Lat: 43°31'2.91"N Long: 72°49'9.083"W Datum: NAD 83
Soil Map Unit: Sunapee fine sandy loam, 8 to 15 percent slopes, very stony NWI Class: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No Normal Circumstances? Yes
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? NO
Hydric Soil Present? NO
Wetland Hydrology Present? NO
Is This Sample Area Within a Wetland? NO
Remarks: Site delineation occurred outside of the growing season; Care was taken to assess vegetation from remnants; Datapoint is located approximately 25 feet upslope from Datapoint 2015-2-DP-1-Wet

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)
Secondary Indicators (minimum of two required)
Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10)
Saturation (A3) Marl Deposits (B13) Moss Trim Lines (B16)
Water Marks (B1) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Crayfish Burrows (C8)
Drift Deposits (B3) Presence of Reduced Iron (C4) Saturation Visible on Aerial (C9)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Stunted or Stressed Plants (D1)
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2)
Inundation Visible on Aerial (B7) Other (Explain in Remarks) Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Depth (inches):
Water Table Present? Depth (inches): Wetland Hydrology Present? NO
Saturation Present? Depth (inches):
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
0.75" precip. recorded in Nov. up to day of investigation, 0.71" recorded during 7 days prior to investigation, 0.01" precip recorded on day of investigation (NOAA)
Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)
Depth Matrix Redox Features Texture Remarks
0-1 10YR 2/2 100 Color (moist) % Type1 Loc2 VERY FINE SANDY LOAM
1-14+ 10YR 3/3 100 FINE SANDY LOAM
1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 2Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, MLRA 149B) 2 cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R)
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S9) (LRR K, L, M)
Stratified Layers (A5) Loamy Gleyed Matrix (F2) Polyvalue Below Surface (S8) (LRR K, L)
Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)
Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy Redox (S5) Red Parent Material (F21)
Stripped Matrix (S6) 3Indicators of hydrophytic vegetation and Very Shallow Dark Surface (TF12)
Dark Surface (S7) (LRR R, MLRA 149B) wetland hydrology must be present, unless Other (Explain in Remarks)
Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? NO
Remarks:

	Absolute % Cover	Dom. Sp?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30' RAD</u> )					
1. <b>Prunus serotina</b>	<b>15</b>	<b>X</b>	<b>FACU</b>	Dominance Test Worksheet: # Dominants OBL, FACW, FAC: _____ (A)  # Dominants across all strata: <u>2</u> (B)  % Dominants OBL, FACW, FAC: _____ (A/B)	
2. <b>Fraxinus pennsylvanica</b>	<b>3</b>		<b>FACW</b>		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
	<b>18</b>	= Total Cover		Prevalence Index Worksheet: Total % Cover of: _____ Multiply By: _____ OBL _____ x 1 = _____ FACW <b>3</b> x 2 = <b>6</b> FAC _____ x 3 = _____ FACU <b>18</b> x 4 = <b>72</b> UPL _____ x 5 = _____ Sum: <b>21</b> (A) <b>78</b> (B)  Prevalence Index = B/A = <b>3.71</b>	
<b>Sapling Stratum</b> (Plot size: <u>15' RAD</u> )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
		= Total Cover			
<b>Shrub Stratum</b> (Plot size: <u>15' RAD</u> )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
		= Total Cover		Hydrophytic Vegetation Indicators: _____ Dominance Test is > 50% _____ Prevalence Index is <= 3.0 _____ Problematic Hydrophytic Vegetation <sup>1</sup> (explain) _____ Rapid Test for Hydrophytic Vegetation _____ Morphological Adaptations  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Herb Stratum</b> (Plot size: <u>5' RAD</u> )					
1. <b>Polystichum acrostichoides</b>	<b>3</b>	<b>X</b>	<b>FACU</b>		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
	<b>3</b>	= Total Cover			
<b>Woody Vines</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
		= Total Cover		Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).  Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.  Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.  Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.  Woody vine - All woody vines, regardless of height.	
Hydrophytic Vegetation Present? <u>NO</u>					

Remarks: (If observed, list morphological adaptations below).

**Malus sp. observed at 15%**



WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2015-2-DP-1-Wet

Project Site: GMP Line 47 Extension City/County: Shrewsbury/Rutland Samp. Date: 11/16/2015
Applicant/Owner: Green Mountain Power Corp. State: VT Sampling Point: 2015-2-DP-1-Wet
Investigator(s): O. McEnroe Section, Township, Range: Shrewsbury
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 8-15
Subregion (LRR or MLRA): LRR R Lat: 43°31'2.825"N Long: 72°49'9.431"W Datum: NAD 83
Soil Map Unit: Sunapee fine sandy loam, 8 to 15 percent slopes, very stony NWI Class: PEM, PFO
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No Normal Circumstances? Yes
Are Vegetation, Soil, or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? YES
Hydric Soil Present? YES
Wetland Hydrology Present? YES
Is This Sample Area Within a Wetland? YES
Remarks: Site delineation occurred outside of the growing season; Care was taken to assess vegetation from remnants; Datapoint is located in a depression near wetland flag 2-4

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)
Secondary Indicators (minimum of two required)
Surface Water (A1) X Water-Stained Leaves (B9)
High Water Table (A2) Aquatic Fauna (B13)
Saturation (A3) Marl Deposits (B13)
Water Marks (B1) Hydrogen Sulfide Odor (C1)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3)
Drift Deposits (B3) Presence of Reduced Iron (C4)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6)
Iron Deposits (B5) Thin Muck Surface (C7)
Inundation Visible on Aerial (B7) Other (Explain in Remarks)
Sparsely Vegetated Concave Surface (B8)
Surface Soil Cracks (B6)
Drainage Patterns (B10)
Moss Trim Lines (B16)
Dry-Season Water Table (C2)
Crayfish Burrows (C8)
Saturation Visible on Aerial (C9)
Stunted or Stressed Plants (D1)
Geomorphic Position (D2)
Shallow Aquitard (D3)
X Microtopographic Relief (D4)
FAC-Neutral Test (D5)

Field Observations:
Surface Water Present?
Water Table Present? X Depth (inches): 6
Saturation Present? X Depth (inches): surface
Wetland Hydrology Present? YES

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
0.75" precip. recorded in Nov. up to day of investigation, 0.71" recorded during 7 days prior to investigation, 0.01" precip recorded on day of investigation (NOAA)

Remarks:

SOIL

Table with 8 columns: Depth, Matrix, Color (moist), %, Color (moist), %, Type, Loc, Texture, Remarks. Rows show data for depths 0-6 and 6-14 inches.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
Histic Epipedon (A2) MLRA 149B)
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B)
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L)
Stratified Layers (A5) Loamy Gleyed Matrix (F2)
Depleted Below Dark Surface (A11) Depleted Matrix (F3)
Thick Dark Surface (A12) X Redox Dark Surface (F6)
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7)
Sandy Gleyed Matrix (S4) Redox Depressions (F8)
Sandy Redox (S5)
Stripped Matrix (S6)
Dark Surface (S7) (LRR R, MLRA 149B)
Indicators for Problematic Hydric Soils3:
2 cm Muck (A10) (LRR K, L, MLRA 149B)
Coast Prairie Redox (A16) (LRR K, L, R)
5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Dark Surface (S9) (LRR K, L, M)
Polyvalue Below Surface (S8) (LRR K, L)
Thin Dark Surface (S9) (LRR K, L)
Iron-Manganese Masses (F12) (LRR K, L, R)
Piedmont Floodplain Soils (F19) (MLRA 149B)
Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Red Parent Material (F21)
Very Shallow Dark Surface (TF12)
Other (Explain in Remarks)

Restrictive Layer (if observed):
Type:
Depth (inches):
Hydric Soil Present? YES

Remarks:

	Absolute % Cover	Dom. Sp?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30' RAD</u> )				
1. <b>Prunus serotina</b>	<b>15</b>	<b>X</b>	<b>FACU</b>	<b>Dominance Test Worksheet:</b> # Dominants OBL, FACW, FAC: <u>1</u> (A) # Dominants across all strata: <u>2</u> (B) % Dominants OBL, FACW, FAC: <u>50%</u> (A/B)
2. <b>Fraxinus pennsylvanica</b>	<b>3</b>		<b>FACW</b>	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	<b>18</b>	= Total Cover		
<b>Sapling Stratum</b> (Plot size: <u>15' RAD</u> )				
1. _____				<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>        </u> Multiply By: <u>        </u> OBL <u>        </u> x 1 = <u>        </u> FACW <u>18</u> x 2 = <u>36</u> FAC <u>        </u> x 3 = <u>        </u> FACU <u>15</u> x 4 = <u>60</u> UPL <u>        </u> x 5 = <u>        </u> Sum: <u>33</u> (A) <u>96</u> (B) Prevalence Index = B/A = <u>2.91</u>
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
<b>Shrub Stratum</b> (Plot size: <u>15' RAD</u> )				
1. _____				<b>Hydrophytic Vegetation Indicators:</b> _____ Dominance Test is > 50% <b>X</b> Prevalence Index is <= 3.0 _____ Problematic Hydrophytic Vegetation <sup>1</sup> (explain) _____ Rapid Test for Hydrophytic Vegetation _____ Morphological Adaptations <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		= Total Cover		
<b>Herb Stratum</b> (Plot size: <u>5' RAD</u> )				
1. <b>Solidago gigantea</b>	<b>15</b>	<b>X</b>	<b>FACW</b>	<b>Definitions of Vegetation Strata:</b>  Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).  Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.  Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.  Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.  Woody vine - All woody vines, regardless of height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<b>15</b>	= Total Cover		
<b>Woody Vines</b> (Plot size: _____ )				
1. _____				<b>Hydrophytic Vegetation Present?</b> <u>YES</u>
2. _____				
3. _____				
4. _____				
5. _____				
		= Total Cover		

Remarks: (If observed, list morphological adaptations below).  
**Malus sp. Observed at 15%; Geum sp. Observed at 15%**