



November 12, 2015
Ref: 57822.00

Ms. Rebecca Chalmers
District Wetlands Ecologist
Vermont DEC – Watershed Management Division
100 Mineral Street
Springfield, VT 05156

Re: GS Precision Expansion Project, Brattleboro, VT
Application for a Vermont Wetland Individual Permit/Wetland Determination Petition

Dear Rebecca:

On behalf of GS Precision ("Applicant"), VHB is submitting the enclosed application form and supporting materials to the Vermont Department of Environmental Conservation ("VT DEC") requesting a Vermont Individual Wetland Permit per the Vermont Wetland Rules pursuant to 10 V.S.A. § 6025(d)(5), to authorize activities related to an addition to a manufacturing building and expanding parking to the west of this building at 101 John Seitz Drive in the Exit One Industrial Park in Brattleboro, VT. A petition for a wetland determination for the on-site wetland proposed for impact is also included.

The Applicant is seeking authorization for Permanent Wetland Buffer Impacts (12,029 square feet) and Temporary Wetland Buffer Impacts (5,506 square feet) for activities required to expand the existing parking area located to the west of the existing manufacturing building and install a new pervious parking area on an adjacent lot. A check payable to the State of Vermont for the permit fee of \$4,623.75 is being sent to you under a separate cover.

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 me if you have any questions, comments, or require further information regarding the enclosed Vermont Wetland Permit Application and Petition for Wetland Determination request and supporting materials.

Sincerely,

A handwritten signature in black ink that reads "Sherrie Trefry". The signature is written in a cursive, flowing style.

Sherrie Trefry
Director of Energy Services

Engineers | Scientists | Planners | Designers

2 Bedford Farms Drive
Suite 200
Bedford, New Hampshire 03110
P 603.391.3900
F 603.518.7495

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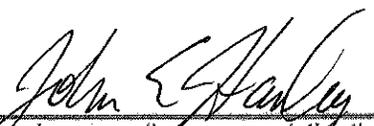
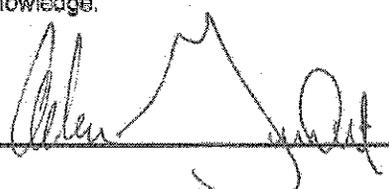


SLT/LGJ/jkw

Enclosures (on CD)
Vermont Wetland Permit Application
Appendix A – Site Plans
Appendix B – Soil information
Appendix C – Site Location Map
Appendix D – Representative Site Photos
Appendix E – Wetland Evaluation Forms
Appendix F – Natural Resource Agency Correspondence

cc: Mike Adams, U. S. Army Corps of Engineers (cover letter only)
Martha Ratcliffe, Stevens & Associates, (cover letter and CD)

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	GS Precision, Inc	
1.2. Applicant Address	101 John Seitz Drive, Brattleboro, VT 05301	
1.3. Applicant Phone Number	802-257-5200	
1.4. Applicant Email	david.sprague@gsprecision.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> <p style="text-align: center;"> <input checked="" type="checkbox"/>  Date: 11/9/15 </p>	
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	Sherrie Trefry, VHB	
2.2. Representative Address	2 Bedford Farms Drive, Suite 200, Bedford, NH 03110-6532	
2.3. Representative Phone Number	603-391-3951	
2.4. Applicant Email	strefry@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> <p style="text-align: center;"> <input checked="" type="checkbox"/> Date: </p>	
3. Landowner	Landowner must sign the application. Use this space if landowner is different from the applicant	
3.1. Landowner Name	GSP Realty LLC – Map 11, Block 4, Lot 1.02 Brattleboro Development Credit Corporation – Map 11, Block 4, Lots 1.033 and 1.11	
3.2. Landowner Address	GSP Realty LLC – 101 John Seitz Drive, Brattleboro, VT 05301 Brattleboro Development Credit Corporation – 76 Cotton Mill Hill, Brattleboro, VT 05301	
3.3. Landowner Phone Number	GSP Realty LLC – 802-257-7731 Brattleboro Development Credit Corporation – 802-257-7731	
3.4. Landowner Email	GSP Realty LLC – david.sprague@gsprecision.com Brattleboro Development Credit Corporation – agrinold@brattleborodevelopment.com	
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. Not applicable.	
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> <p style="text-align: center;"> <input checked="" type="checkbox"/>  Date: 11/9/15 </p>	

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.		
	The project area is located at 101 John Seitz Drive in Brattleboro, Vermont. John Seitz Drive is located on the north and east side of the project area, with one commercial building located along GSP Drive to the south, and three residential houses along Goldfinch Lane to the west. The project area includes Lots 1, 2, and 2B (referring to lot numbers on the Site Plans in Appendix A).		
5. Site Visit Date and Attendees	Date of visit with District Wetlands Ecologist	List people present for site visits including Ecologist, landowner, and representatives.	
	October 14, 2015	Rebecca Chalmers (District Wetlands Ecologist), Sherrie Trefry (VHB), Adam Crary (VHB), Martha Ratcliff (Stevens & Associates), and Jerry Dube (GS Precision Facilities Manager) met to discuss VT DEC project number 2015-592.	
6. Wetland Classification	<p>The wetland is a Class II wetland because (Choose one):</p> <p>The Class II Wetland Areas A, B, and C and their associated buffers within the project area are classified according to the 2010 Vermont Wetland Rules following procedures described in Section 4.0.</p> <p>In summary, wetlands are classified as Class II when:</p> <ul style="list-style-type: none"> • Wetland meets a Section 4.6 Presumption or • Wetland meets Section 5 Functional Criteria significance. <p>As seen on the Site Plans in Appendix A, Wetland Areas B and C are considered Class II wetlands because they are associated with a stream. Wetland Area A and C are larger than 0.5 acres in extent.</p> <p>The detention basin located on Lot 2 is a stormwater pond historically created in wetlands and a stream and is exempt from the Vermont Wetland Rules.</p>		
7. Description of Entire Wetland or Wetland Complex	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.		
7.1. Size of Wetland Complex in Acres	<p>Can be obtained from the Environmental Interest Locator Map for mapped wetlands</p> <p>Wetland Area A – 0.51 acres Wetland Area B – 0.25 acres Wetland Area C – 0.52 acres</p> <p>*these wetland acres are estimated The Delineated Boundaries can be seen on the Site Plans in Appendix A.</p>		
7.2. Natural Community Types Present	<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>Wetland Area A – 70% forested swamp, 20% scrub swamp, 10% emergent Wetland Area B – 50% forested swamp, 40% scrub swamp, 10% emergent Wetland Area C – 70% emergent, 20% scrub swamp, 10% forested</p>		
7.3. Landscape Position	<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>A detention basin is located to northwest of the GS Precision building's existing parking area. There are three wetlands adjacent to the detention basin; Wetland Area A to the northwest, Wetland Area B to the west, and Wetland Area C to the south. Two intermittent streams enter the detention basin; one from the southwest entering the property from a culvert underneath GSP Drive, and the other from the forested area to the</p>		

	<p>northwest. The detention basin then drains to the north via an intermittent stream.</p> <p>Wetland Area A is located on a footslope that drains in the direction of the detention basin.</p> <p>Wetland Area B is a depressional feature with stream inputs emerging from the adjacent hillslope. The stream outlets to the detention basin.</p> <p>Wetland Area C is a wet meadow depressional feature adjacent to a mowed lawn. Stream inputs emerge from an upslope culvert underneath GSP Drive and outlets to the detention basin.</p> <p>The wetland complex is a depressional feature on a larger land terrace characterized by agricultural and some developed land within the Southern Vermont Piedmont biophysical region.</p> <p>A portion of each wetland is located upslope of the adjacent parking areas. The westernmost portion of Wetland Area A is located above Elevation 430, and then drops in elevation as it drains to the detention basin which is at Elevation 414. Similarly, a portion of Wetland Areas B and C are located upslope of the proposed parking area adjacent to these wetlands, then they lower in elevation as they drain to the detention basin.</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>The source of hydrology for Wetland Areas A, B, and C are the nearby intermittent streams as well as overland flow and groundwater discharge. The source of hydrology for the two intermittent streams are overland flow and groundwater discharge.</p> <p>Include answers to the following where appropriate:</p>	
<p>7.4.1. Direction of flow</p>	<p>For example: stream flows from north to south through the wetland complex. The flow of water through the project's wetland system is south to north.</p>	
<p>7.4.2. Influence of hydrology on wetland complex</p>	<p>For example: The river provides flood water to the wetland in the spring.</p> <p>The intermittent stream entering the project area from the southwest hydrologically supports Wetland Area B, and the intermittent stream entering the project area from the south supports Wetland Area C. Both intermittent streams provides water for the detention basin and stream leaving the basin.</p>	
<p>7.4.3. Relation to the project area</p>	<p>Distance between the project area and any nearby surface waters.</p> <p>Stream drainage from Wetland Area B into the detention basin is within 25 feet of the proposed project work, and from Wetland Area C is within 40 feet of the proposed project work.</p>	
<p>7.4.4. Hydroperiod</p>	<p>Discuss frequency and duration of flooding, ponding, and/or soil saturation. Wetland soils are seasonally inundated/saturated based on precipitation conditions, overland flow, and associated stream flows through the wetlands.</p>	
<p>7.5. Surrounding Landuse of the Wetland Complex</p>	<p>For example: rural residential and forested; agricultural and undeveloped, The project is surrounded by a mixed-use landscape (commercial to the south and east and forested/residential to the west and north). In addition, Interstate 91 runs north to south directly to the east of the GS Precision building, and Route 5 runs northeast to southwest to the west of the residential areas along the western side of the project area.</p>	
<p>7.6. Relation to Other Nearby Wetlands</p>	<p>Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question. The intermittent streams that run through the detention basin receive overland flow and groundwater from the surrounding landscape, and from the detention basin a stream drains toward a ponded wetland system located adjacent to the Connecticut River, approximately 0.7 miles away.</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>The area surrounding the existing parking lot is maintained by mowing and landscaping, which borders the detention pond and Wetland Area C. Non-native invasive species are also present within and surrounding the project area.</p>	
8. Description of Subject Wetland	<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>	
8.1. Context of Subject Wetland	<p>Describe where the subject wetland is in the context of the larger wetland or wetland complex described above.</p> <p>The subject wetlands extend to a larger wetland complex that is adjacent to the Connecticut River.</p>	
8.2. Wetland Landuse	<p>For example: mowed lawn; old field; naturally vegetated. Describe any previous and ongoing disturbance in the subject wetland.</p> <p>Wetland Area C extends into the maintained mowed area that is adjacent to the parking lot. The detention basin within the project area is man-made, therefore Wetland Areas A, B, and C surrounding the detention basin have been previously disturbed from the construction activities associated with creating the basin.</p>	
8.3. Wetland Vegetation	<p>List dominant wetland community type and associated dominant plant species.</p> <p>Wetland Area A – (PSS) <i>Rosa multiflora</i> Wetland Area B – (PEM/PSS) <i>Tsuga Canadensis</i>, <i>Lindera benzoin</i>, <i>Onoclea sensibilis</i>, <i>Impatiens capensis</i>, <i>Myosotis</i> spp. Wetland Area C – (PEM) <i>Phalaris arundinaceae</i>, <i>Typha latifolia</i></p>	
8.4. Wetland Soils	<p>Use USDA NRCS information where possible and use the ACOE Delineation Manual soil description</p> <p>Wetland Areas A, B, and C are mapped as Deerfield fine sandy loam, depleted matrix (ACOE Indicator F3). Refer to Appendix B for USDA NRCS soil map and wetland delineation notes by Wendell Wetland Services.</p>	
8.5. Wetland Hydrology	<p>Use descriptions from the ACOE Delineation Manual.</p> <p>Wetland Area A: Saturation (A3), water-stained leaves (B9), sparsely vegetated concave surface (B8) Wetland Areas B and C: Surface water (A1), water-stained leaves (B9), sparsely vegetated concave surface (B8)</p>	
8.6. Buffer Zone	<p>Describe the buffer zone of the subject wetland including:</p>	
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>The wetlands are surrounded by roads, a parking area and associated mowed lawn, and forested areas.</p>	
8.6.2. Buffer vegetation	<p>List community type and dominant plant species</p> <p>Trees – <i>Tsuga Canadensis</i>, <i>Pinus strobus</i> Shrubs – <i>Betula lenta</i>, <i>Acer saccharum</i>, <i>Acer pensylvanicum</i>, <i>Carpinus caroliniana</i> Herbs – <i>Osmunda claytoniana</i>, <i>Dryopteris intermedia</i> <i>Carex</i> spp., <i>Veronica officinalis</i>, <i>Fraxinus pensylvanica</i> (seedlings), <i>Athyrium filix-femina</i>, <i>Aster</i> spp.</p>	
8.6.3. Buffer soils	<p>Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description</p> <p>The USDA NRCS soils for the wetland buffer areas are Deerfield fine sandy loam.</p>	

<p>9. Wetland Determination</p>	<p>If the application involves a wetland determination please answer the following. If not, skip to Section 10.</p>	
<p>9.1. Reason for Petition</p>	<p>Please choose one from the dropdown menu: Add a Section 4.6 presumed wetland to the VSWI map.</p>	
<p>9.2. Previous Decisions</p>	<p>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:</p> <p>Not applicable</p>	
<p>9.3. Narrative</p>	<p>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.</p> <p>Not applicable.</p>	
<p>If the application is only for a Wetland Determination only, skip to Section 13</p>		

<p>10. Project Description</p>		
<p>10.1. Overall Project</p>	<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>The GS Precision Expansion project consists of an addition to the manufacturing building and expanding parking to the west of the building at 101 John Seitz Drive in the Exit One Industrial Park in Brattleboro, Vermont.</p> <p>GS Precision currently has a shortage of parking available for employees and at shift overlap times the shortage is exacerbated causing employees to park in aisles, double-park, or park in no parking zones. GS Precision also needs to expand their manufacturing building, thus retaining their over 300 well-paid jobs for the surrounding community and providing the potential for up to 100 additional jobs over the next five years.</p> <p>The proposed project includes the expansion of the existing GS Precision manufacturing building to the north and east and the addition of at least 30 employees in the next two years with up to 100 new employees in the next five years. Existing parking areas will be lost as a result of the building expansion, which necessitates the addition of parking areas. The proposed locations of these additional parking areas are along the western side of the existing parking area adjacent to the building on Lot 1, and the creation of a new parking area to the west of the detention pond on Lot 2B. Pervious pavement will be used on the western parking area. These parking areas are proposed to extend into the Class II wetland buffers of Wetlands A, B, and C. No permanent impacts to wetlands are proposed in order to complete the project work.</p>	
<p>10.2. Project Purpose</p>	<p>For example: To construct a residential subdivision, upgrade existing road to improve access, extend a trail system</p> <p>The purpose of the proposed project is to expand the building and parking areas of GS Precision in order to meet the growing need for working space within the manufacturing building and parking space outside of the building as the company expands.</p>	
<p>10.3. Acres Owned by Applicant</p>	<p>Acreage of subject property.</p> <p>Lot 1 – 5.2 acres Lot 2 – 2.09 acres Lot 2B – 1.95 acres</p> <p>*Referring to Lot numbers on Site Plans (see Appendix A).</p>	

10.4.Acres Involved in the Project	Acreage of area involved in the project. The total amount of disturbance within Lots 1, 2, and 2B are proposed to be 3.374 acres.	
11.Project Details	Provide details regarding specific impacts to the wetland and buffer zone	
11.1.Specific Impacts to Wetland and Buffer Zone	List portions of the project that will specifically impact the wetland or buffer zone. No project work will be conducted within wetlands. Grading and construction of the new parking areas will permanently and temporarily impact the wetland buffers of Wetland Areas A, B, and C.	
11.2.Dimension Details	Square footage of buildings, dimension of roads including fill footprint. Refer to the Site Plans in Appendix A .	
11.3.Bridges and Culverts	Culvert circumference, length, placement and shapes, or bridge details. A footbridge will be installed over the detention basin to connect the two parking areas. Refer to the Site Plans in Appendix A .	
11.4.Construction Sequence	Describe any details pertaining to the worked planned in the wetland and buffer in terms of sequence or phasing that is relevant Construction for both the addition to the building on Lot 1 and the additional parking areas on Lots 1 and 2B are proposed to be conducted at the same time beginning in February of 2016. Construction is anticipated to be completed in September of 2016.	
11.5.Stormwater Design	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. Amendments will be made to the appropriate stormwater permits issued to GS Precision (3742-9010.R, 3303-9010.R, and 3801-9010). Erosion and sediment control barriers will be installed prior to the start of the proposed project work. The erosion control measures indicated on the plans shall be considered a minimum and shall be revised as construction conditions warrant. Erosion controls will be inspected and maintained throughout the duration of project activities and will not be removed until project work is complete and the project area is stabilized. In addition, swales will be vegetated before installation of permanent check dams. Temporarily disturbed areas, including stockpile, will be mulched on slopes flatter than 3:1 or an erosion control blanket will be used for slopes that exceed 3:1 when these areas haven't been used for 7 to 21 days. Temporary seed and mulch must be applied to disturbed areas that will not be brought to final grade for more than 21 days. Refer to the Site Plans in Appendix A .	
11.6.Permanent Demarcation of Limits of Impact	Describe any plantings, fencing, signage, or other memorialization that provides permanent on-the-ground boundaries for the limits of disturbance for ongoing uses. A guardrail and plantings are proposed along the western side of the proposed parking area to the east of Wetland Area C. Another guardrail is proposed to be installed between the proposed parking areas to the west of the detention basin and Wetland Areas A and B. The entrance to the western parking area is to be lined with a concrete retaining wall. In addition, an 8-foot wide foot bridge will be installed across the detention basin to connect the western parking area to the main property.	
12.Wetland and Buffer Zone Impacts		
12.1.Wetland Impacts	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>Totals</p> <table border="1"> <tr> <td>Wetland Fill</td> <td>0 s.f.</td> </tr> <tr> <td>Temporary Wetland Impact</td> <td>0 s.f.</td> </tr> <tr> <td>Other Permanent Wetland Impact</td> <td>0 s.f.</td> </tr> </table> <p>Describe in detail the proposed impact.</p> <p>No permanent or temporary wetland impacts are proposed.</p>	Wetland Fill	0 s.f.	Temporary Wetland Impact	0 s.f.	Other Permanent Wetland Impact	0 s.f.	
Wetland Fill	0 s.f.							
Temporary Wetland Impact	0 s.f.							
Other Permanent Wetland Impact	0 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>Totals</p> <table border="1"> <tr> <td>Temporary Buffer Impact</td> <td>5,506 s.f.</td> </tr> <tr> <td>Permanent Buffer Impact</td> <td>12,029 s.f.</td> </tr> </table> <p>Describe in detail the proposed impact.</p> <p>The permanent and temporary buffer impacts will result from constructing the new parking areas along Wetland Areas A, B, and C.</p>	Temporary Buffer Impact	5,506 s.f.	Permanent Buffer Impact	12,029 s.f.			
Temporary Buffer Impact	5,506 s.f.							
Permanent Buffer Impact	12,029 s.f.							
<p>12.3. Cumulative Impacts</p>	<p>List any potential cumulative or ongoing, direct and indirect impacts on the functions of the wetland that could result from the proposed project.</p> <p>None.</p>							
<p>12.4. Avoidance and Minimization</p>	<p>Please refer to Section 9.5b of the rules on Mitigation Sequencing for this section.</p>							
<p>12.4.1. Avoidance</p>	<p>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.</p> <p>Several alternative options to the location of the parking areas where wetland buffer impacts are proposed were considered but were decided against due to cost or space limitations. Refer to 12.4.2 below for the descriptions of the alternatives that were considered.</p> <p>In addition, the project team designed the proposed parking to minimize the impact to wetlands and buffers in the following ways:</p> <ul style="list-style-type: none"> • No direct impacts to wetlands are required to complete the project. • 12,029 square feet of the 9,183 square feet of proposed parking within the wetland buffer will be pervious such that stormwater will infiltrate instead of sheeting into the wetland, salt use will be reduced, and sand will not be used. • Removal of 0.25 acres of existing pavement. • Addition of a treatment swale and a curb at the small area of the existing parking lot (11 parking spaces) to the west such that runoff will be treated before entering the pond and runoff will be directed away from the wetland. • Barriers to snow storage in the wetlands anywhere there is less than a 25 foot buffer and identification of snow storage areas. • Treatment of stormwater, via overland flow on grass at a slope at less than 5% near the pond, from the small additional pavement proximate to the pond. 							

	<ul style="list-style-type: none"> • Vegetation within wetland buffers and around the pond that is disturbed during construction will be stabilized and allowed to naturally revegetate after construction and will not be maintained. • The parking at 101 John Seitz Drive was reconfigured to maximize the number of spaces. • The proposed second curb-cut at 101 John Seitz Drive was eliminated to improve mobility within the existing parking lot because it used some available parking. • The parking on Lot 2B was redesigned to be pulled away from both Wetland Area A and B in order to give a wider buffer between the parking lot and the wetlands. • The parking at 347 John Seitz Drive was reconfigured to maximize the number of spaces. In addition, 30 parking spaces at 343 John Seitz Drive were leased for use by GS Precision.
<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>Several alternatives to the proposed project were considered, which are discussed below:</p> <p>1. Relocation outside Vermont: Selection of the in-state alternative was a result of the response team assembled by Brattleboro Development Credit Corporation who worked closely with the principals of GSP to define the competitive advantages that would be realized by choosing to grow their business in Brattleboro at the Exit One Industrial Park. The in-state alternative will allow for the preservation of 320 existing, well-paid jobs and will add 100 professional engineering jobs that are vital to economic health and growth of the greater Brattleboro community. Southern Vermont recently lost close to 300 high wage jobs due to the closure of Vermont Yankee Nuclear Power Plant and will lose another 200 jobs in the next year as the closure process continues. Therefore, GSP has committed to the expansion of their facilities within Brattleboro as stewards of the local economy.</p> <p>2. Relocate to other sites within Brattleboro: The sites investigated would be too small for the project needs and would necessitate a company run shuttle that would be costly and put an additional burden on employees. Other sites were considered within the Exit One Industrial Park, but these locations either did not provide enough adequate space or were too costly in order to be feasible.</p> <p>3. Alternate building design concepts: Several different configurations were developed for GSP's expansion plans in order to minimize the amount of additional parking required. These alternatives included:</p> <ul style="list-style-type: none"> - <i>Use second floor space.</i> This was determined not feasible since the parts manufactured by GSP are highly precise, and in order to manufacture such products, the machinery must not have any vibration. The machinery must be located on the ground floor level to make the quality products GSP needs to fulfill its contracts. As part of this project, GS Precision will be adding almost \$5,000,000 in new machinery and those machines will need first floor space. - <i>Move office functions to the second floor.</i> This concept was rejected due to cost since this would mean an elevator would need to be installed in order to comply with ADA design regulations. The addition of an elevator is required for the addition of only 1,000 square feet of office space. The cost of the elevator is estimated at \$80,000.

	<p>-<i>Construct structured parking.</i> The cost for doing so on Lot 1 was approximately three times the cost of the proposed parking lot on Lot 2B. Structured parking on Lot 2B was also considered, but was not feasible due to site constraints, as there is not enough length for floor to floor transitions.</p> <p>-<i>Maximize parking without expansion into Lot 2B.</i> Increase on-street parking areas on John Seitz Drive. This alternative was determined not feasible since John Seitz Drive is not wide enough for angled parking.</p>	
<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> <p>As described in 12.4.1 and 12.4.2, the project has been designed to mitigate against adverse impacts through avoidance and minimizing adverse impacts to the Class II wetlands function. The Site Plans (refer to Appendix A), provides details on specific construction requirements to protect the wetlands during construction using erosion and sedimentation control, and to protect them from further disturbance once the project work is complete using plantings and guardrails.</p>	
<p>12.4.4. Compensation</p>	<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>The proposed project has avoided, minimized, and mitigated against undue adverse impact to on-site Class II wetland and buffer functions to the extent feasible.</p> <p>A Buffer Protection Area of 2,564 square feet is proposed along the edge of Wetland Area C (refer to Appendix A). This area, which is currently maintained by mowing, will be left to naturally revegetate in order to provide a protected buffer between the maintained lawn and Wetland Area C. In addition, buffer plantings are planned within the grass treatment swale associated with the proposed parking area on Lot 1.</p> <p>A treatment swale will be located along Wetland Area C between the improved parking area and the detention basin. This treatment swale will handle stormwater with better mechanics than a rain garden and does not require the degree of maintenance that a rain garden does. The treatment swale is an engineered swale that is lined with specific soil for soil based water infiltration and is sized for the contributing area based on Vermont stormwater regulations.</p> <p>Invasive species will be controlled within the limits of construction that are disturbed. Construction is proposed to occur within late winter and early spring outside of the growing season which reduces the likelihood of invasive species promulgation into the construction footprint. Any invasive species that are removed during site preparation will be handled appropriately and removed from the site. Temporary impact areas will be seeded and thoroughly mulched to prevent natural recruitment by invasive species present in the surrounding natural landscape. The restored areas will be monitored for invasive species until the area is vegetated. Observed invasive species in restoration areas will be hand-pulled prior to flowering and properly disposed.</p>	
<p>13. Supporting materials</p>	<p>Where appropriate list the accompanying material by title, author, date and last revision date. Submit these documents and plans with the application.</p>	

<p>13.1. Location map</p>	<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. Refer to Appendix C, Site Location Map.</p>																	
<p>13.2. Site Plans</p>	<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. Refer to the Site Plans in Appendix A.</p>																	
<p>13.3. ACOE Delineation Forms</p>	<p>List by author, location, and date. Required only for Individual Permits. Refer to the USACE Wetland Determination Forms completed by Wendell Wetland Services in Appendix B.</p>																	
<p>13.4. Other Supporting Documents</p>	<p>Provide any other documentation that supports the application. List photographs; easements; agreements; may include a GIS-compatible wetland submittal for determinations; etc. Refer to Appendix D for representative site photos.</p>																	
<p>13.5. List of Abutters (Neighbors with land adjoining wetland or buffer zone)</p>	<p>Attach list of names and mailing addresses or submit as word mailing document. Abutting landowners of the project area will be notified by the Applicant when the application is determined to be technically complete. There are two abutters to the project area: Map 11, Block 4, Lot 1.031 Shire Town Properties LLC 279 Sunset Lake Road Williamsville, VT 05362 Map 37, Block 0, Lot 2 Steven Easton, Maria Easton 14 Goldfinch Lane Brattleboro, VT 05301</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. ***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. Not Applicable.</p>																	
<p>14. Check Which Functions are Present in the Subject Wetland and in the Wetland Complex.</p>	<p>Wetland Function Summary: (if more than one wetland use supplemental wetland sheets) The wetland functions and values will not be impacted since no wetland impacts are proposed as a result of the project. Buffer functions and values of Wetland Areas A and B will not be impacted due to pervious pavement within the new parking area on Lot 2B, and buffer functions and values of Wetland Area C will not be impacted due to the plantings and the wetland restoration area planned along the improved parking area within Lot 1. The main functions and values provided by Wetland Areas A, B, and C include storage for flood water and storm runoff as well as surface and ground water protection. Refer to attached Wetland Evaluation Forms in Appendix E.</p> <table border="1" data-bbox="560 1843 1594 1953"> <thead> <tr> <th>Functions & Values</th> <th>Subject Wetland</th> <th>Wetland Complex</th> <th>Functions & Values</th> <th>Subject Wetland</th> <th>Wetland Complex</th> </tr> </thead> <tbody> <tr> <td>Flood/Storm Storage</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>RTE Species</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>						Functions & Values	Subject Wetland	Wetland Complex	Functions & Values	Subject Wetland	Wetland Complex	Flood/Storm Storage	<input type="checkbox"/>	<input type="checkbox"/>	RTE Species	<input type="checkbox"/>	<input type="checkbox"/>
Functions & Values	Subject Wetland	Wetland Complex	Functions & Values	Subject Wetland	Wetland Complex													
Flood/Storm Storage	<input type="checkbox"/>	<input type="checkbox"/>	RTE Species	<input type="checkbox"/>	<input type="checkbox"/>													

	Surface & Groundwater Protection	<input type="checkbox"/>	<input type="checkbox"/>	Education & Research	<input type="checkbox"/>	<input type="checkbox"/>
	Fish Habitat	<input type="checkbox"/>	<input type="checkbox"/>	Recreation/Economic	<input type="checkbox"/>	<input type="checkbox"/>
	Wildlife Habitat	<input type="checkbox"/>	<input type="checkbox"/>	Open Space/Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>
	Exemplary Natural Community	<input type="checkbox"/>	<input type="checkbox"/>	Erosion Control	<input type="checkbox"/>	<input type="checkbox"/>

15. Coverage under Vermont General Wetland Permit

If applying for an Individual Vermont Wetland Permit or Determination, please proceed to number 16 and answer the remaining application questions.

If applying for Coverage under the Vermont General Wetland Permit, please complete question 15.1 prior to submitting application.

15.1.VWP Vermont General Permit eligibility checklist

If applying for coverage under the Vermont General Wetland Permit, please verify the following to complete the application:

- The activity qualifies as an eligible activity for coverage under the Vermont General Wetland Permit
- The proposed project will meet the conditions applicable to the proposed project in the Vermont Wetland General Permit
- The activity does not qualify as an Allowed Use under Section 6 of the Vermont Wetland Rules.
- 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.
- All impacts have been avoided and minimized to the greatest extent possible.
- The wetland complex is not significant for Function 5.5 Exemplary Wetland Natural Community or 5.6 Rare, Threatened and Endangered Species Habitat.
- The activity is not located in or adjacent to a vernal pool, fen, or bog.
- The wetland is not at or above 2,500' in elevation (headwaters wetland).
- 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.
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	<p>If more than one wetland complex is involved, use the Supplemental Wetland Forms.</p>	
<p>16. Storage for Flood Water and Storm Runoff</p>	<p><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.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Constricted outlet or no outlet and an unconstricted inlet. <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water. <input type="checkbox"/> Hydrologic or hydraulic study indicates wetland attenuates flooding. <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"> <input type="checkbox"/> 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). <input type="checkbox"/> Wetland is contiguous to a major lake or pond that provides storage benefits independently of the wetland. <input type="checkbox"/> Wetland's storage capacity is created primarily by recent beaver dams or other temporary structures. <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><input 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"> <input type="checkbox"/> History of downstream flood damage to public or private property. <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. 	

	<ol style="list-style-type: none"> 1. Developed public or private property. 2. Stream banks susceptible to scouring and erosion. 3. Important habitat for aquatic life. <p><input type="checkbox"/> The wetland is large in size and naturally vegetated.</p> <p><input type="checkbox"/> Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.</p> <ol style="list-style-type: none"> <input type="checkbox"/> 1. A large amount of impervious surface in urbanized areas. <input type="checkbox"/> 2. Relatively impervious soils. <input type="checkbox"/> 3. Steep slopes in the adjacent areas. 	
<p>16.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</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>17. Surface and Ground Water Protection</p>	<p><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.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Constricted or no outlets. <input type="checkbox"/> Low water velocity through dense, persistent vegetation. <input type="checkbox"/> Hydroperiod permanently flooded or saturated. <input type="checkbox"/> Wetlands in depositional environments with persistent vegetation wider than 20 feet. <input type="checkbox"/> Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula. <input type="checkbox"/> Presence of seeps or springs. <input type="checkbox"/> Wetland contains a high amount of microtopography that helps slow and filter surface water. <input type="checkbox"/> Position in the landscape indicates the wetland is a headwaters area. <input type="checkbox"/> Wetland is adjacent to surface waters. <input type="checkbox"/> Wetland recharges a drinking water source. <input type="checkbox"/> Water sampling indicates removal of pollutants or nutrients. <input type="checkbox"/> Water sampling indicates retention of sediments or organic matter. <input type="checkbox"/> Fine mineral soils and alkalinity not low. <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; 	

	<p>row crops; dumps; areas of pesticide, herbicide or fertilizer application; feed lots; parking lots or heavily traveled road; and septic systems.</p> <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"> <input type="checkbox"/> Presence of dead forest or shrub areas in sufficient amounts to result in diminished nutrient uptake. <input type="checkbox"/> Presence of ditches or channels that confine water and restrict contact of water with vegetation. <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. <input type="checkbox"/> Current use in the wetland results in disturbance that compromises this function. <p><input 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"> <input type="checkbox"/> The wetland is adjacent to a well head or source protection area, and provides ground water recharge. <input type="checkbox"/> The wetland provides flows to Class A surface waters. <input type="checkbox"/> The wetland contributes to the protection or improvement of water quality of any impaired waters. <input type="checkbox"/> The wetland is large in size and naturally vegetated. 	
<p>17.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</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>18. Fish Habitat</p>	<p><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.</p> <ul style="list-style-type: none"> <input 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. <input 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 	

	<p>lakes and streams, and seasonally flooded wetlands associated with streams and rivers.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Documented or professionally judged spawning habitat for northern pike. <input type="checkbox"/> Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species. <input 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. 	
<p>18.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</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>19. Wildlife Habitat</p>	<ul style="list-style-type: none"> <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"> <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. <input 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 zone. <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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. 	

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| | <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an adult beaver population.</p> <p><input type="checkbox"/> Provides the following habitats that support the reproduction of Uncommon Vermont amphibian species including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1. Wood Frog, Jefferson Salamander, Blue-spotted Salamander, or Spotted Salamander. Breeding habitat for these species includes vernal pools and small ponds. <input type="checkbox"/> 2. Northern Dusky Salamander and the Spring Salamander. Habitat for these species includes headwater seeps, springs, and streams. <input type="checkbox"/> 3. The Four-toed salamander; Fowler's Toad; Western or Boreal Chorus frog, or other amphibians found in Vermont of similar significance. <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Meets four or more of the following conditions indicative of wildlife habitat diversity:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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; <input type="checkbox"/> 2. The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp; |
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- 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 and seeps are generally small in size, so this does not apply).
 - 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.
 - The current use in the wetland results in frequent cutting, mowing or other disturbance.
 - The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The wetland complex is large in size and high in quality.
 - The habitat has the potential to support several species based on the assessment above.
 - Wetland is associated with an important wildlife corridor.

	<input type="checkbox"/> The wetland has been identified as a locally important wildlife habitat by an ANR Wildlife Biologist.	
19.1.Subject Wetland	Please explain how the subject wetland contributes to the function listed above	
19.2.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.	
20.Exemplary Wetland Natural Community	<p><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.</p> <p><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.</p> <p>The wetland is also likely to be significant if any of the following conditions are met:</p> <p><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.</p> <p><input type="checkbox"/> Contains ecological features that contribute to Vermont’s natural heritage, including, but not limited to:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Deep peat accumulation reflecting a long history of wetland formation; <input type="checkbox"/> Forested wetlands displaying very old trees and other old growth characteristics; <input type="checkbox"/> A wetland natural community that is at the edge of the normal range for that type; <input type="checkbox"/> A wetland mosaic containing examples of several to many wetland community types; or <input type="checkbox"/> A large wetland complex containing examples of several wetland community types. <p>List species or communities of concern:</p>	
20.1.Subject Wetland	Please explain how the subject wetland contributes to the function listed above	
20.2.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.	

<p>21. Rare, Threatened, and Endangered Species Habitat</p>	<p><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.</p> <p><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.</p> <p>The wetland is also likely to be significant if any of the following apply:</p> <p><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;</p> <p><input type="checkbox"/> There is credible documentation that threatened or endangered species have been present in past 10 years;</p> <p><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;</p> <p><input type="checkbox"/> There is credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).</p> <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>	
<p>21.2. Statement of no 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>22. Education and Research in Natural Sciences</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.</p> <p><input type="checkbox"/> Owned by or leased to a public entity dedicated to education or research.</p> <p><input type="checkbox"/> History of use for education or research.</p> <p><input type="checkbox"/> Has one or more characteristics making it valuable for education or research.</p>	
<p>22.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p>	
<p>22.2. 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>23. Recreational Value and Economic Benefits</p>	<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Used for, or contributes to, recreational activities. <input type="checkbox"/> Provides economic benefits. <input type="checkbox"/> Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law. <input type="checkbox"/> Used for harvesting of wild foods. <p>Comments:</p>	
<p>23.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p>	
<p>23.2. 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>24. Open Space and Aesthetics</p>	<p><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.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Can be readily observed by the public; and <ul style="list-style-type: none"> <input type="checkbox"/> Possesses special or unique aesthetic qualities; or <input type="checkbox"/> Has prominence as a distinct feature in the surrounding landscape; <input type="checkbox"/> Has been identified as important open space in a municipal, regional or state plan. <p>Comments:</p>	
<p>24.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</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>25. Erosion Control through Binding and Stabilizing the Soil</p>	<p><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.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Erosive forces such as wave or current energy are present and any of the following are present as well: <ul style="list-style-type: none"> <input type="checkbox"/> Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force. 	

	<p><input type="checkbox"/> Good interspersion of persistent emergent vegetation and water along course of water flow. Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.</p> <p>What type of erosive forces are present:</p> <p><input type="checkbox"/> Lake fetch and waves</p> <p><input type="checkbox"/> High current velocities:</p> <p><input type="checkbox"/> Water level influenced by upstream impoundment</p> <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> <p><input type="checkbox"/> The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.</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>higher</i> level.</p> <p><input type="checkbox"/> The stream contains high sinuosity.</p> <p><input type="checkbox"/> Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.</p>	
<p>25.1. Subject Wetland</p>	<p>Please explain how the subject wetland contributes to the function listed above</p>	
<p>25.2. 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>	

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

Applicant Name: GS Precision, Inc		Representative Name: David Sprague	
Town where project is located: Brattleboro		County: Windham	
Project Location Description: 101 John Seitz Drive, Brattleboro, VT, 05301 <i>911 Street Address or direction from nearest intersection</i>			
Project Summary: The GS Precision Expansion Project consists of an addition to the manufacturing building and expanding parking to the west of the building at 101 John Seitz Drive in the Exit One Industrial Park in Brattleboro, Vermont.			
Permit Type Requested (check all that apply)			
<input type="checkbox"/> Vermont General Permit Coverage		<input checked="" type="checkbox"/> Wetland Determination	<input checked="" type="checkbox"/> Vermont Wetland Permit
Impact Calculations: Total up proposed impacts from wetland tables listed below			
Total Wetland Impact		0 square feet (s.f.)	Total Buffer Zone Impact
			17,535 square feet (s.f.)
Total Wetland Clearing (qualified linear projects only)		0 square feet (s.f.)	Total Buffer Zone Clearing (qualified linear projects only)
			0 square feet (s.f.)
Permit Fees: Make check payable to - State of Vermont			
Wetland Impact Fee: (\$0.75/sf)		\$0	Administrative Fee: \$240
Buffer Impact Fee: (\$0.25/sf)		\$4,383.75	Total Check Amount: \$4,623.75
Clearing Fee: (\$0.25/sf)		\$0	
Existing Land Use Type: (check all that apply)			
<input checked="" type="checkbox"/> Forestry		<input type="checkbox"/> Residential (Subdivision)	<input checked="" 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 type="checkbox"/> Undeveloped
Proposed Land Use Type: (check all that apply)			
<input type="checkbox"/> Forestry		<input type="checkbox"/> Residential (Subdivision)	<input checked="" 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 type="checkbox"/> No Change
Proposed Impact Type: (check all that apply)			
<input type="checkbox"/> Buildings		<input type="checkbox"/> Utilities	<input checked="" type="checkbox"/> Parking
<input type="checkbox"/> Driveway		<input type="checkbox"/> Road	<input type="checkbox"/> Septic/Well
		<input type="checkbox"/> Stormwater	
<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
TOTAL Wetland: (Wetland Areas A, B, and C)		Location: 101 John Seitz Drive, Brattleboro, VT	
Wetland Type: PEM/PSS		WL Size Class :	
Proposed Alterations			
Wetland Alteration:		Buffer Zone Alteration:	Wetland Alteration Type (check all that apply)
Wetland Fill: 0 s.f.			<input type="checkbox"/> Dredge
			<input type="checkbox"/> Drain
Temporary: 0 s.f.		Temporary: 5,506 s.f.	<input type="checkbox"/> Cut Vegetation
			<input type="checkbox"/> Stormwater
Permanent: 0 s.f.		Permanent: 12,029 s.f.	<input checked="" type="checkbox"/> Trench/Fill
			<input type="checkbox"/> Other
Mitigation			
Avoidance and Minimization		Wetland: s.f.	Buffer Zone s.f.
See Application Section 12			
Wetland Mitigation: (s.f. Gained)		Buffer Zone Mitigation (s.f. Gained):	
Restoration 0 s.f.		Enhancement 0 s.f.	Restoration 0 s.f.
			Enhancement 2,564 s.f.
Creation 0 s.f.		Conservation 0 s.f.	Creation 0 s.f.
			Conservation 0 s.f.
Reason for Mitigation:		<input type="checkbox"/> Correction of Violation	<input type="checkbox"/> Mitigation to offset permit impacts
			<input checked="" 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

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

Appendices A through F



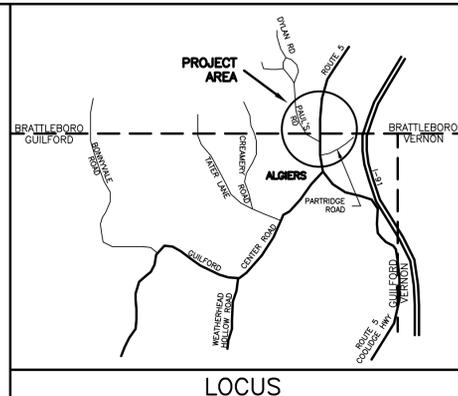
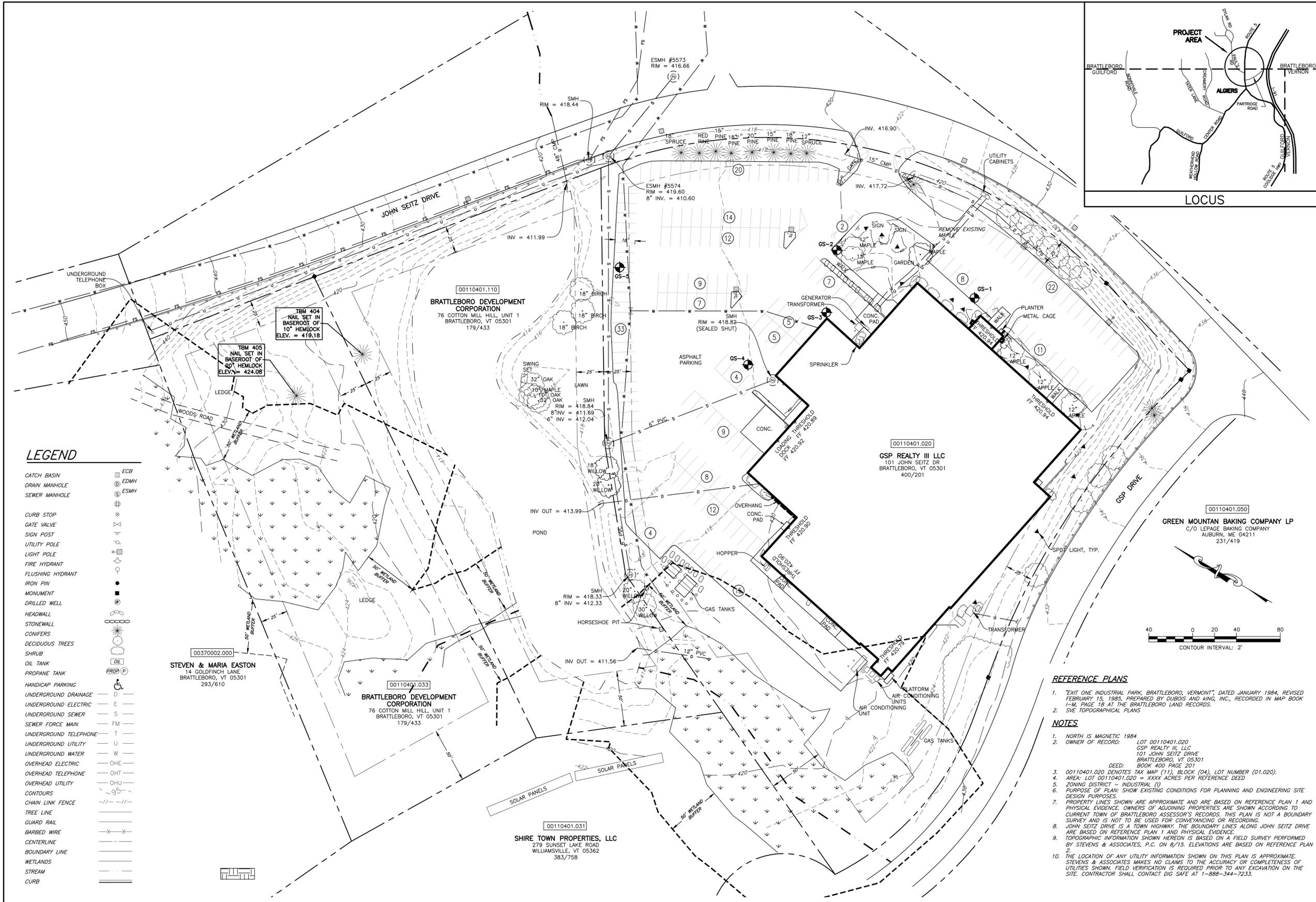
Appendix A	Site Plans
Appendix B.....	Soil Information
Appendix C	Site Location Map
Appendix D.....	Representative Site Photographs
Appendix E.....	Wetland Evaluation Forms
Appendix F	Natural Resource Agency Correspondence



Appendix A

Site Plans





STEVENS & ASSOCIATES, P.C.
 SMART DESIGN FOR LIVABLE COMMUNITIES

ARCHITECTS | ENGINEERS
 LANDSCAPE ARCHITECTS | PLANNERS
 95 MAIN ST. | P.O. BOX 1586
 BRATTLEBORO, VT 05302
 PH: 802-257-9329 | F: 802-258-3892
 WWW.STEVENS-ASSOC.COM

PURPOSE OF DRAWING:
 ZONING PERMIT SUBMISSION
 OCTOBER 23, 2015
 NOT FOR CONSTRUCTION

101 JOHN SEITZ DRIVE IMPROVEMENTS
 BRATTLEBORO, VERMONT 05301

PREPARED FOR:
G.S. PRECISION
 101 JOHN SEITZ DRIVE
 BRATTLEBORO, VERMONT 05301

DATE:	
REVISION:	

EXISTING CONDITIONS PLAN

DES. BY	RKS
DWN. BY	PBG
CHKD. BY	BDS
SCALE	1" = 40'
DATE	10/23/15
PROJECT NUM:	15-025
DWG. NO.	

LEGEND

- CATCH BASIN
- DRAIN MANHOLE
- SEWER MANHOLE
- CURB STOP
- GATE VALVE
- SIGN POST
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- FLUSHING HYDRANT
- IRON PIN
- MONUMENT
- DRILLED WELL
- HEADWALL
- STONEWALL
- CONIFERS
- DECIDUOUS TREES
- SHRUB
- OIL TANK
- PROPANE TANK
- HANDICAP PARKING
- UNDERGROUND DRAINAGE
- UNDERGROUND ELECTRIC
- UNDERGROUND SEWER
- SEWER FORCE MAIN
- UNDERGROUND TELEPHONE
- UNDERGROUND UTILITY
- UNDERGROUND WATER
- OVERHEAD ELECTRIC
- OVERHEAD TELEPHONE
- OVERHEAD UTILITY
- CONTOURS
- CHAIN LINK FENCE
- TREE LINE
- GUARD RAIL
- BARBED WIRE
- CENTERLINE
- BOUNDARY LINE
- WETLANDS
- STREAM
- CURB

REFERENCE PLANS

- "EXIT ONE INDUSTRIAL PARK, BRATTLEBORO, VERMONT", DATED JANUARY 1984, REVISED FEBRUARY 15, 1985, PREPARED BY DUBOIS AND KING, INC., RECORDED IN MAP BOOK I-M, PAGE 18 AT THE BRATTLEBORO LAND RECORDS.
- SVE TOPOGRAPHICAL PLANS

NOTES

- NORTH IS MAGNETIC 1984
- OWNER OF RECORD: LOT 00110401.020 GSP REALTY III, LLC 101 JOHN SEITZ DRIVE BRATTLEBORO, VT 05301 DEED: BOOK 400 PAGE 201
- 00110401.020 DENOTES TAX MAP (11), BLOCK (04), LOT NUMBER (01.020). AREA: LOT 00110401.020 = XXXX ACRES PER REFERENCE DEED
- ZONING DISTRICT - INDUSTRIAL (I)
- PURPOSE OF PLAN: SHOW EXISTING CONDITIONS FOR PLANNING AND ENGINEERING SITE DESIGN PURPOSES.
- PROPERTY LINES SHOWN ARE APPROXIMATE AND ARE BASED ON REFERENCE PLAN 1 AND PHYSICAL EVIDENCE. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF BRATTLEBORO ASSESSOR'S RECORDS. THIS PLAN IS NOT A BOUNDARY SURVEY AND IS NOT TO BE USED FOR CONVEYANCING OR RECORDING.
- JOHN SEITZ DRIVE IS A TOWN HIGHWAY. THE BOUNDARY LINES ALONG JOHN SEITZ DRIVE ARE BASED ON REFERENCE PLAN 1 AND PHYSICAL EVIDENCE.
- TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY STEVENS & ASSOCIATES, P.C. ON 8/15. ELEVATIONS ARE BASED ON REFERENCE PLAN 2.
- THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. STEVENS & ASSOCIATES MAKES NO CLAIMS TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. FIELD VERIFICATION IS REQUIRED PRIOR TO ANY EXCAVATION ON THE SITE. CONTRACTOR SHALL CONTACT DIG SAFE AT 1-888-344-7233.



PURPOSE OF DRAWING:
ZONING PERMIT SUBMISSION
OCTOBER 23, 2015
NOT FOR CONSTRUCTION

101
JOHN SEITZ
DRIVE
IMPROVEMENTS
BRATTLEBORO, VERMONT 05301

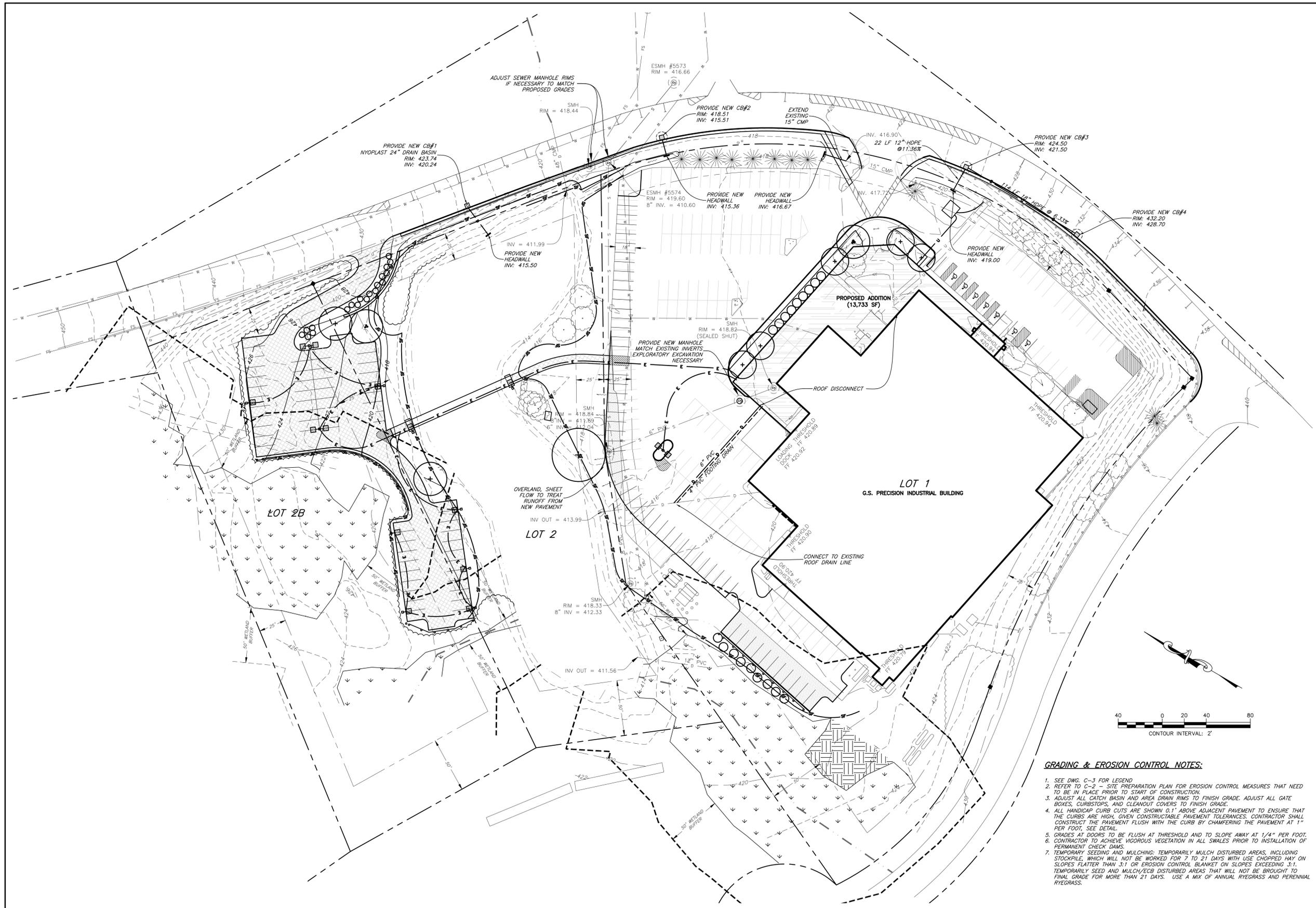
PREPARED FOR:
G.S. PRECISION
101 JOHN SEITZ DRIVE
BRATTLEBORO, VERMONT 05301

DATE:
REVISION:

GRADING,
UTILITY &
EROSION
CONTROL PLAN

DES. BY	RKS
DWN. BY	PBG
CHKD. BY	BDS
SCALE	1" = 40'
DATE	10/23/15
PROJECT NUM.	15-025
DWG. NO.	

C-4



- GRADING & EROSION CONTROL NOTES:**
- SEE DWG. C-3 FOR LEGEND
 - REFER TO C-2 - SITE PREPARATION PLAN FOR EROSION CONTROL MEASURES THAT NEED TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.
 - ADJUST ALL CATCH BASIN AND AREA DRAIN RIMS TO FINISH GRADE. ADJUST ALL GATE BOXES, CURBSTOPS, AND CLEARDOUT COVERS TO FINISH GRADE.
 - ALL HANDICAP CURB CUTS ARE SHOWN 0.1' ABOVE ADJACENT PAVEMENT TO ENSURE THAT THE CURBS ARE HIGH, GIVEN CONSTRUCTABLE PAVEMENT TOLERANCES. CONTRACTOR SHALL CONSTRUCT THE PAVEMENT FLUSH WITH THE CURB BY CHAMFERING THE PAVEMENT AT 1" PER FOOT. SEE DETAIL.
 - GRADES AT DOORS TO BE FLUSH AT THRESHOLD AND TO SLOPE AWAY AT 1/4" PER FOOT.
 - CONTRACTOR TO ACHIEVE VIGOROUS VEGETATION IN ALL SWALES PRIOR TO INSTALLATION OF PERMANENT CHECK DAMS.
 - TEMPORARY SEEDING AND MULCHING: TEMPORARILY MULCH DISTURBED AREAS, INCLUDING STOCKPILES, WHICH WILL NOT BE WORKED FOR 7 TO 21 DAYS WITH USE CHOPPED HAY ON SLOPES FLATTER THAN 3:1 OR EROSION CONTROL BLANKET ON SLOPES EXCEEDING 3:1. TEMPORARILY SEED AND MULCH/ECB DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR MORE THAN 21 DAYS. USE A MIX OF ANNUAL RYEGRASS AND PERENNIAL RYEGRASS.

GENERAL NOTES:

- EXISTING UTILITIES HAVE BEEN SHOWN FROM THE BEST AVAILABLE DATA AND ARE APPROXIMATE ONLY. THE CONTRACTOR IN ALL OPERATIONS SHALL ANTICIPATE THE EXISTENCE OF UTILITIES THAT ARE NORMALLY LOCATED IN THE PUBLIC RIGHT-OF-WAY, BUT NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND NOTIFY THE APPROPRIATE UTILITY COMPANY OR AUTHORITY. CONTRACTOR SHALL DIG TEST PITS WHEREVER PROPOSED UNDERGROUND UTILITIES CROSS EXISTING UTILITIES.
- EXISTING FENCES, POLES, SIGNS, MAILBOXES, CURBS, SHRUBS, PAVEMENT, LAWN AREAS AND OTHER SITE FEATURES SHALL BE REMOVED AND REPLACED OR REMOVED AND RESTORED IN KIND BY THE CONTRACTOR AS REQUIRED DURING THE CONSTRUCTION WORK. ALL YARD WORK SHALL BE COORDINATED WITH SITE WORK PROVIDED FOR IN CONTRACT DOCUMENTS.
- CONTRACTOR TO COORDINATE/REVIEW LOCATION OF ALL PROPOSED UTILITIES WITH THE APPROPRIATE UTILITY COMPANY OR AUTHORITY.
- MAINTAIN SERVICE OF ALL UTILITIES DURING CONSTRUCTION. WHERE NECESSARY TO TEMPORARILY INTERRUPT SERVICE, NOTIFY THE UTILITY TO TEMPORARILY INTERRUPT SERVICE, AND NOTIFY THE UTILITY AND ALL AFFECTED PERSONS PRIOR TO INTERRUPTION.
- MAINTAIN THROUGH TRAFFIC IN PUBLIC WAYS AT ALL TIMES.
- DO NOT OBSTRUCT ACCESS TO PRIVATE DRIVEWAYS.
- PROVIDE ALL BARRICADES, FENCES, WARNING LIGHTS, SIGNS AND UNIFORMED TRAFFIC CONTROL PERSONNEL NECESSARY TO PROTECT THE PUBLIC DURING CONSTRUCTION.
- THE CONTRACTOR SHALL FINE CONSTRUCTION OPERATIONS AND ACTIVITIES TO THE SITE AS SHOWN ON THE DRAWINGS. STORAGE AND PROTECTION OF MATERIALS AND STRUCTURES OFF THE SITE WILL BE BY OTHER ARRANGEMENTS OF THE CONTRACTOR.
- EXAMINE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR VERIFICATION OF LOCATIONS AND DIMENSIONS OF PROJECT REQUIREMENTS NOT SHOWN ON THE SITE DRAWINGS.
- CONTRACTOR TO ENSURE THAT ALL LOCAL PERMITS, STATE PERMITS AND CONSTRUCTION EASEMENTS FROM NEIGHBORING PROPERTY OWNERS HAVE BEEN OBTAINED PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND DIMENSIONS AND SHALL STAKE OUT THE WORK PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER TO REVIEW GRADES PRIOR TO REPLACEMENT OF GRAVEL & PAVEMENT.
- PROVIDE TEMPORARY OR PERMANENT SUPPORTS, WHETHER SHORING, SHEETING OR BRACING SO THAT NO HORIZONTAL MOVEMENT OR VERTICAL SETTLEMENT OCCURS TO EXISTING STRUCTURES, STREETS OR UTILITIES ADJACENT TO THE PROJECT SITE.
- PROVIDE HAY BALE DIKES, SILT FENCES AND OTHER EROSION CONTROL AS REQUIRED TO CONTROL EROSION AND DUST.
- THE CONTRACTOR SHALL BE RESPONSIBLE IN DETERMINING ANNUAL AND SEASONAL VARIATIONS IN GROUND WATER LEVEL WHICH MAY EFFECT THE WORK. GROUND WATER SHALL UNDER NO CONDITIONS CONSTITUTE GROUNDS FOR REVISION IN CONTRACT PRICE OR COMPLETION DATE.
- FABRICATION AND CERTAIN PORTIONS OF THE WORK SHALL NOT BE STARTED UNTIL CHECKED SHOP DRAWINGS COVERING THE WORK HAVE BEEN SUBMITTED BY THE CONTRACTOR AND REVIEWED BY THE ENGINEER.

MAINTENANCE OF EROSION CONTROL STRUCTURES:

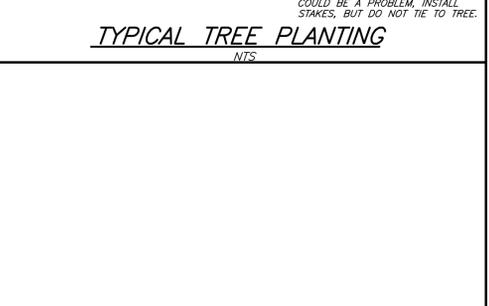
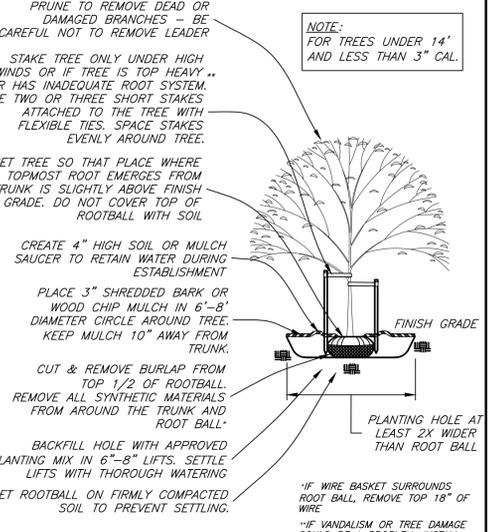
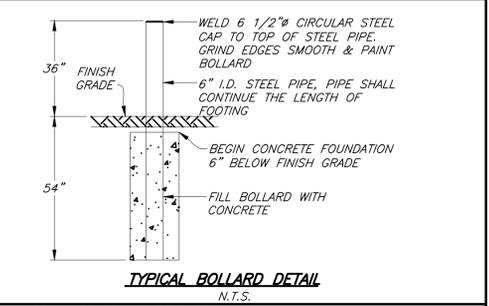
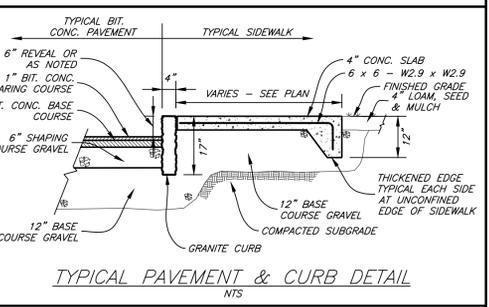
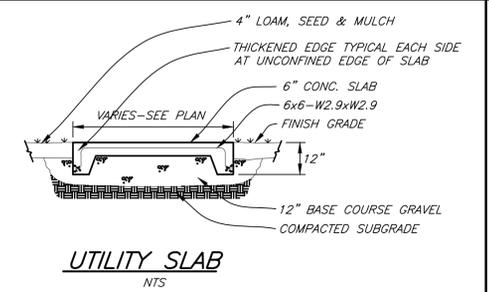
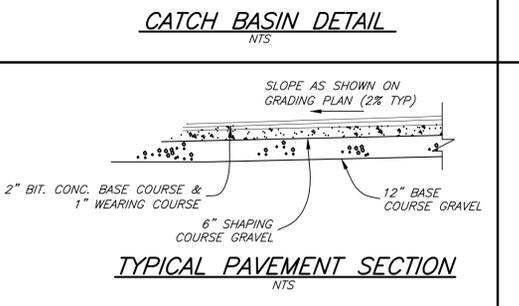
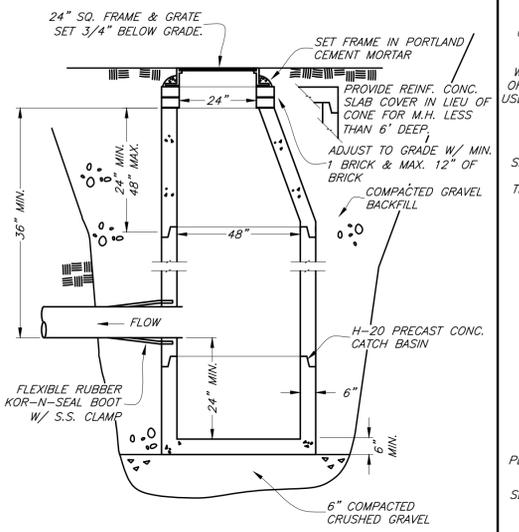
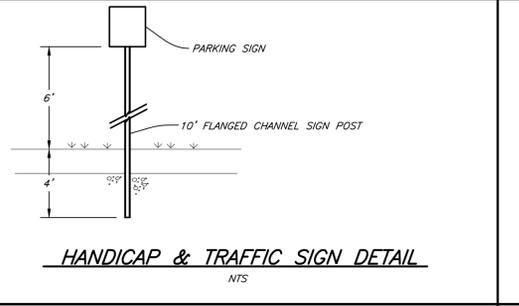
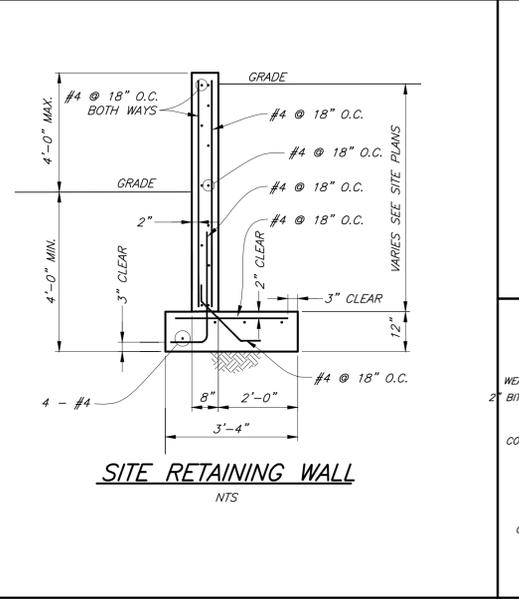
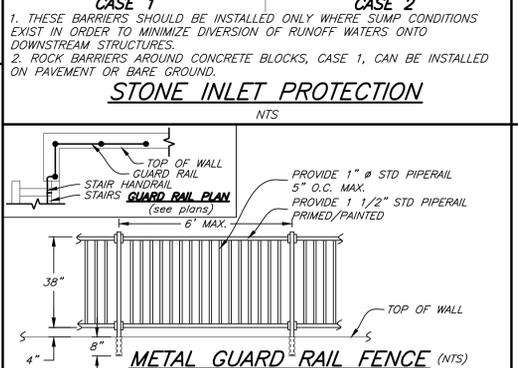
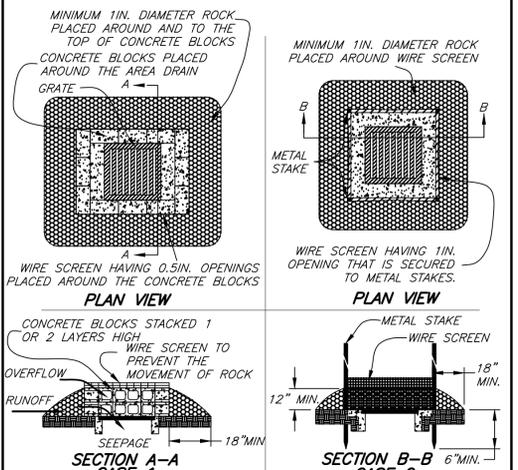
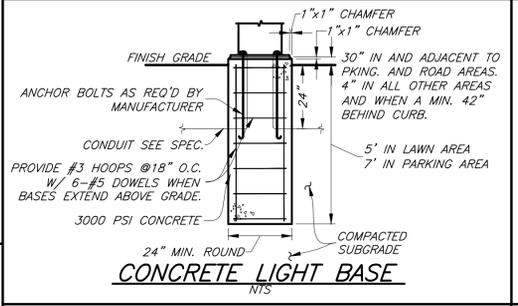
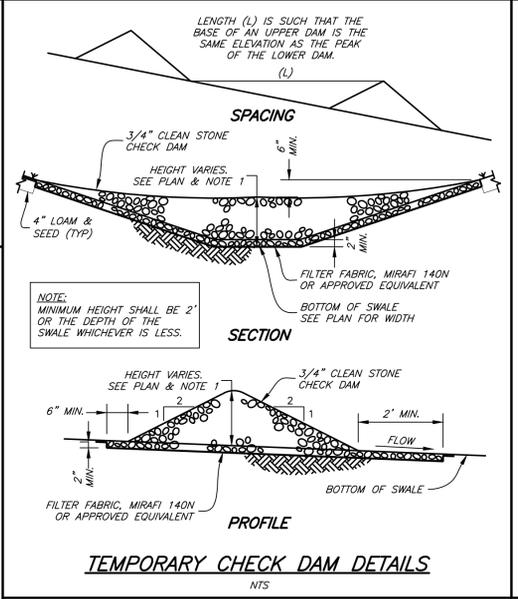
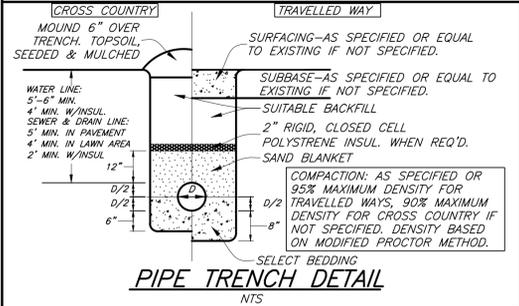
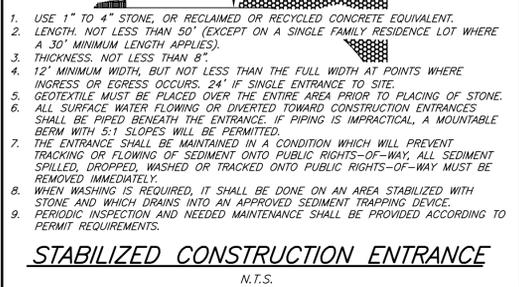
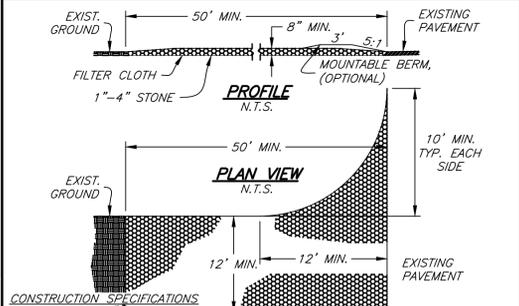
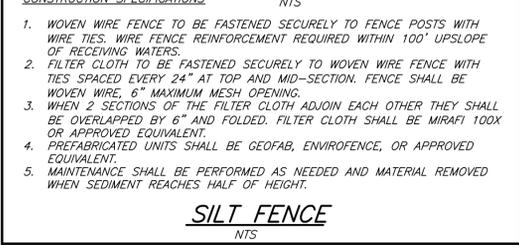
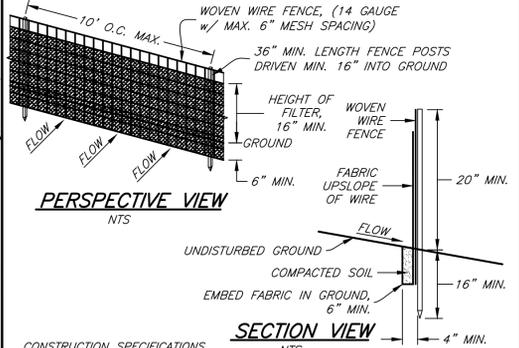
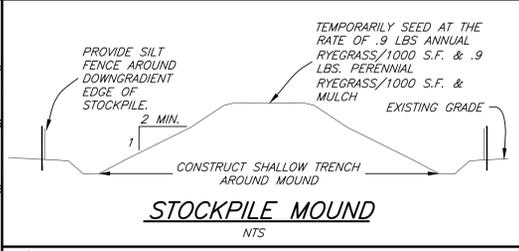
- SILT FENCES ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS. WHEN SEDIMENT ACCUMULATION REACHES A DEPTH OF 12" BEHIND THE SILT FENCE, THE SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF. OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO REMOVAL.
- STONE CHECK DAMS SHALL BE REPLACED WHEN THEY BECOME CLOGGED WITH SOIL PARTICLES OR AS DIRECTED BY THE ENGINEER. CLEAN SILT AND SOIL FROM UPSTREAM FACE OF STONE CHECK DAMS WHEN ACCUMULATION IS NOTICEABLE.
- KEEP ALL DRAINAGE ENTRANCES FREE OF DEBRIS DURING CONSTRUCTION. SWEEP ROADS AS REQUIRED OR DIRECTED BY THE ENGINEER.
- CLEAN TEMPORARY DIVERSION DITCHES WHEN THEY BECOME FULL TO 50% OF THEIR ORIGINAL VOLUME OR AS DIRECTED BY THE ENGINEER.
- REINFORCE NETTING, MATTING, AND BLANKETS WITH ADDITIONAL STAPLES IF THEY HAVE MOVED. REPAIR DAMAGE CAUSED BY WATER EROSION OR WIND AT THE END OF EACH DAY.
- REPAIR AND REPLACE STONE INLET PROTECTION WHEN STONES BECOME CLOGGED WITH SEDIMENT.
- REPAIR ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION ACTIVITIES AT OR BEFORE THE END OF EACH WORKING DAY. DAMAGE TO ANY EROSION CONTROL MEASURE AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED IMMEDIATELY.

WINTER EROSION CONTROL:

- ALL EROSION CONTROL FEATURES SUCH AS SILT FENCE AND STONE CHECK DAMS MUST BE IN PLACE PRIOR TO GROUND FREEZING.
- ALL DISTURBED AREAS OF THE SITE SHALL BE SEEDED AND MULCHED FROM SEPTEMBER 15 TO MAY 1 REGARDLESS OF WHETHER FINISHED GRADING HAS BEEN COMPLETED. WORK MAY CONTINUE THROUGH THIS PERIOD WITH WRITTEN PERMISSION FROM THE ENGINEER AND PROVIDED THE FOLLOWING WINTER EROSION CONTROLS ARE IMPLEMENTED:
 - WINTER RYE SEEDS SHALL BE SUBSTITUTED FOR ANY OTHER TEMPORARY ANNUAL GRASS SEEDS.
 - ALL EXPOSED EARTH SHALL BE MULCHED WITH 6 INCHES OF HAY OR STRAW. SLOPES GREATER THAN 8% SHALL BE COVERED WITH STAKED EROSION CONTROL MAT (NORTH AMERICAN GREEN 875 OR APPROVED EQUIVALENT).
 - EARTHWORK SHALL ONLY TAKE PLACE DURING SUITABLE CONDITIONS, I.E. THERE SHALL BE NO EARTHWORK DURING MODERATE OR HEAVY RAINS, WET SNOW, OR THAWS.

EROSION CONTROL GENERAL NOTES:

- GENERAL: TEMPORARY EROSION CONTROL SHALL BE ACCOMPLISHED THROUGH THE USE OF SILT FENCES, HAY OR STRAW MULCH, CHECK STRUCTURES, INLET PROTECTION, SEDIMENT TRAPS, TEMPORARY AND PERMANENT SEEDING AND DIVERSION DITCHES. THE EROSION CONTROL SPECIFIED AND DETAILED ON THE PLANS SHALL BE CONSIDERED THE MINIMUM REQUIRED AND IS TO BE USED AS A GUIDELINE ONLY. ADDITIONAL MEASURES MAY BE DICTATED BY FIELD CONDITIONS. PROVIDE ADDITIONAL EROSION CONTROL AS REQUIRED BY THE TOWN, STATE, OR THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION CONTROL DURING CONSTRUCTION & UNTIL PERMANENT VEGETATION IS ESTABLISHED.
- ALL EROSION CONTROL PROCEDURES SHALL CONFORM TO APPLICABLE SECTIONS OF THE "EROSION AND SEDIMENT CONTROL DESIGN HANDBOOK" FROM THE USDA SOIL CONSERVATION SERVICE AND/OR THE "VERMONT HANDBOOK FOR SOIL EROSION AND SEDIMENT CONTROL".
- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED FOR THE SHORTEST PRACTICAL PERIOD AT ANY GIVEN TIME DURING THE DEVELOPMENT. EXPOSED AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 48 HOURS OF FINISH GRADING.
- SILT DEPOSITED ON SITE SHALL BE COLLECTED AND REMOVED.
- THE CONTRACTOR IS RESPONSIBLE FOR WATER CONTROL DURING ALL PHASES OF CONSTRUCTION. NO WORK SHALL BE PERMITTED IN FLOWING WATER. DIVERSION SHALL BE ACCOMPLISHED BY THE USE OF SAND BAGS, BERMS, TEMPORARY CULVERTS OR BY PUMPING. ALL DIVERTED WATER SHALL BE DISCHARGED TO DIRT BAGS, STONE FILL OR OTHER SUITABLE ENERGY DISSIPATER SURROUNDED BY SILT FENCE AND HAY BALE DIKES.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.



STEVENS & ASSOCIATES, P.C.
SMART DESIGN FOR LIVABLE COMMUNITIES

S&A

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BRATTLEBORO, VT 05302
PH: 802-257-9329 | F: 802-258-3892
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PURPOSE OF DRAWING:
ZONING PERMIT SUBMISSION
OCTOBER 23, 2015
NOT FOR CONSTRUCTION

101
JOHN SEITZ
DRIVE
IMPROVEMENTS
BRATTLEBORO, VERMONT 05301

PREPARED FOR:
G.S. PRECISION
101 JOHN SEITZ DRIVE
BRATTLEBORO, VERMONT 05301

DATE:
REVISION:

DES. BY: RKS
DWN. BY: PBG
CHKD. BY: BDS
SCALE: AS SHOWN
DATE: 10/23/15
PROJECT NUM: 15-025
DWG. NO.

C-5

SHEET 5 OF 6

EROSION CONTROL GENERAL NOTES:

- REFER TO SPECIFICATION SECTION 02370 - EROSION PREVENTION & SEDIMENT CONTROL PLAN.
- TEMPORARY EROSION CONTROL SHALL BE ACCOMPLISHED THROUGH THE USE OF SILT FENCES, HAY OR STRAW MULCH, EROSION CONTROL BLANKET (ECB), CHECK STRUCTURES, INLET & OUTLET PROTECTION, A STABILIZED CONSTRUCTION ENTRANCE, A SEDIMENT TRAP, TEMPORARY AND PERMANENT SEEDING AND DIVERSION DITCHES. THE EROSION CONTROL SPECIFICATIONS AND DETAILS ON THE PLANS SHALL BE CONSIDERED THE MINIMUM REQUIRED AND IS TO BE USED AS A GUIDELINE ONLY. ADDITIONAL MEASURES MAY BE DICTATED BY FIELD CONDITIONS. PROVIDE ADDITIONAL EROSION CONTROL AS REQUIRED BY THE TOWN, STATE, OR THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION CONTROL DURING CONSTRUCTION & UNTIL PERMANENT VEGETATION IS ESTABLISHED.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT EXTRA EROSION CONTROL MATERIALS (SILT FENCE, CRUSHED STONE, MULCH HAY, ROLLED EROSION CONTROL PRODUCT (RECP) ARE PRESENT ON SITE AT ALL TIMES FROM THE COMMENCEMENT OF EARTHWORK THROUGH FINAL STABILIZATION TO ENABLE RAPID RESPONSE TO PROBLEM SITUATIONS.
- ALL EROSION CONTROL PROCEDURES SHALL CONFORM TO APPLICABLE SECTIONS OF THE "EROSION AND SEDIMENT CONTROL DESIGN HANDBOOK" PREPARED BY THE USDA SOIL CONSERVATION SERVICE AND/OR THE "VERMONT HANDBOOK FOR SOIL EROSION AND SEDIMENT CONTROL".
- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED FOR THE SHORTEST PRACTICAL PERIOD AT ANY GIVEN TIME DURING THE DEVELOPMENT. EXPOSED AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 48 HOURS OF FINISH GRADING. AREAS THAT WILL NOT BE BROUGHT TO FINISH GRADE FOR 7 TO 21 DAYS WILL BE TEMPORARILY MULCHED/ECB. AREAS THAT WILL NOT BE BROUGHT TO FINISH GRADE FOR 21 DAYS OR LONGER WILL BE TEMPORARILY SEEDED AND MULCHED/ECB.
- SILT DEPOSITED ON SITE SHALL BE COLLECTED AND REMOVED.
- THE CONTRACTOR IS RESPONSIBLE FOR WATER CONTROL DURING ALL PHASES OF CONSTRUCTION. DIVERSION OF FLOWING WATER SHALL BE PERMITTED BY THE USE OF SAND BAGS, BERMS, TEMPORARY CULVERTS OR BY PUMPING. ALL DIVERTED WATER SHALL BE DISCHARGED TO SEDIMENT CONTAINMENT FILTER BAGS, STONE FILL OR OTHER SUITABLE ENERGY DISSIPATOR SURROUNDING BY A CONTAINMENT BERM.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

EROSION CONTROL MATERIALS:

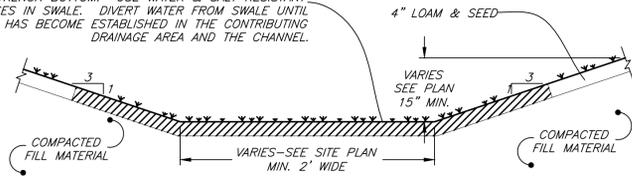
- SILT FENCE:** SILT FENCE SHALL BE MARAFI WITH PREFABRICATED 36-INCH POSTS OR APPROVED EQUIVALENT. IT SHALL BE INSTALLED IN ACCORDANCE WITH THE PLAN DETAILS.
- RIPRAP:** SEE SPECIFICATIONS & DETAILS.
- MULCH:** MULCH SHALL BE DRY MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE OF NOXIOUS WEEDS OR WOODY STEMS. NO SALT HAY SHALL BE USED.
- MULCH NETTING:** NETTING USED TO HOLD MULCH IN PLACE SHALL BE AN APPROVED PAPER, TWINE, PLASTIC OR PLASTIC AND WOOD FIBER NETTING.
- EROSION CONTROL MATTING (BLANKET):** MATTING SHALL BE INSTALLED ON ANY SLOPES STEEPER THAN 3/4 TO 1/4 MAY 1" TO SEPTEMBER 15". AFTER SEPTEMBER 15", MATTING SHALL BE USED ON ALL SLOPES GREATER THAN 5%. MATTING SHALL NORTH AMERICAN GREEN ST5 OR APPROVED EQUIVALENT.
- FERTILIZER:** SEE SPECIFICATIONS.
- LIME:** SEE SPECIFICATIONS.
- TEMPORARY SEED MIXTURES:** SEE SPECIFICATIONS.
- PERMANENT SEED MIXTURES:** SEE SPECIFICATIONS.

RECORDKEEPING:

- ON-SITE PLAN COORDINATOR RESPONSIBILITIES:** THE CONTRACTOR SHALL DESIGNATE AN ON-SITE PLAN COORDINATOR WHO SHALL KEEP A WRITTEN RECORD OF INSPECTIONS AND ANY WATER QUALITY MONITORING DATA AND SHALL NOTE ALL PROBLEM AREAS AND THE MEASURES TAKEN TO CORRECT THOSE PROBLEMS AND PREVENT FUTURE PROBLEMS. THE RECORDS SHALL REFLECT THE STATUS OF THE PROJECT IN TERMS OF CONSISTENCY WITH THE PLANNED CONSTRUCTION SEQUENCE, WHAT AREAS ARE DISTURBED AT THE TIME OF THE INSPECTION, AND WHAT AREAS HAVE BEEN TEMPORARILY OR PERMANENTLY STABILIZED SINCE THE LAST INSPECTION RECORD. EACH INSPECTION RECORD SHALL BE SIGNED BY THE ON-SITE PLAN COORDINATOR.
- PROFESSIONAL ENGINEER OR INSPECTED PROFESSIONAL IN EROSION & SEDIMENT CONTROL RESPONSIBILITIES:** WHEN INSPECTIONS ARE ALSO BEING MADE BY A REGISTERED PROFESSIONAL, INSPECTION REPORTS SHALL BE SUBMITTED TO THE ON-SITE PLAN COORDINATOR TO BE INCORPORATED INTO THE ON-SITE PLAN COORDINATOR'S RECORDS.
- OWNER/PERMITEE RESPONSIBILITIES:** THE INSPECTION RECORDS SHALL BE KEPT ON-SITE AND SHALL BE MADE AVAILABLE TO THE STATE OR THE STATE'S REPRESENTATIVES UPON REQUEST. THE PERMITEE SHALL RETAIN A COPY OF THE PLAN AND ANY RECORDS REQUIRED BY THIS PERMIT FOR A MINIMUM OF 3 YEARS FOLLOWING THE COMPLETION OF THE CONSTRUCTION ACTIVITIES.

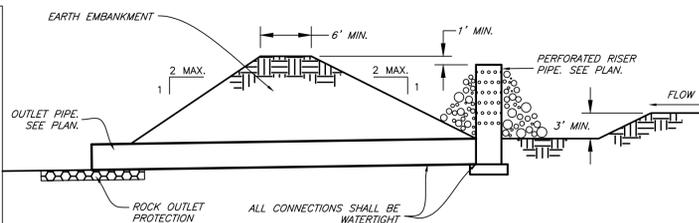
ON-SITE COORDINATOR: _____ PHONE: _____

GRASSED CHANNEL LOAM, SEED & TYPE II EROSION CONTROL BLANKET (UNLESS OTHERWISE SPECIFIED ON THE PLANS) TO 12" ABOVE TRENCH BOTTOM. USE WATER & SALT RESISTANT GRASSES IN SWALE. DIVERT WATER FROM SWALE UNTIL VEGETATION HAS BECOME ESTABLISHED IN THE CONTRIBUTING DRAINAGE AREA AND THE CHANNEL.



GRASSED CHANNEL DETAIL
NTS

NOTE: TRAP, BASIN, AND SLOPES SHALL BE VEGETATED. THE PERFORATED RISER PIPE AND OUTLET PIPE SHALL BE MADE OF CORRUGATED METAL OR HDPE. THE TOP OF THE STANDPIPE SHALL BE ONE FOOT BELOW THE TOP OF EMBANKMENT. THE TOP 2/3 OF THE RISER SHALL BE PERFORATED WITH ONE INCH DIAMETER HOLES SPACED 8-INCHES VERTICALLY AND 10-12 INCHES HORIZONTALLY AROUND THE PIPE. IN ORDER TO INCREASE THE EFFICIENCY OF THE TRAP, WRAP THE RISER PIPE WITH GEOTEXTILE FABRIC HELD IN PLACE BY WOVEN WIRE AND SECURED BY STRAPPING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE THE TEMPORARY SEDIMENT TRAP IN ITS ENTIRETY, AND FILL BASIN WITH SUITABLE MATERIAL TO FINISHED GRADE UPON COMPLETION OF CONSTRUCTION AND AS DIRECTED BY THE ENGINEER. WHERE SEDIMENT TRAPS ARE LOCATED WHERE PERMANENT DETENTION/INFILTRATION BASINS ARE TO BE CONSTRUCTED, THE BOTTOM OF THE SEDIMENT TRAP SHALL BE A MINIMUM OF 18" ABOVE THE BOTTOM ELEVATION OF THE PERMANENT BASIN.



TEMPORARY SEDIMENT TRAP
NTS

MAINTENANCE OF EROSION CONTROL STRUCTURES:

- SILT FENCES ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS. WHEN SEDIMENT ACCUMULATION REACHES A DEPTH OF 12" BEHIND THE SILT FENCE, THE SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF. OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO REMOVAL.
- STONE CHECK DAMS SHALL BE REPLACED WHEN THEY BECOME CLOGGED WITH SOIL PARTICLES OR AS DIRECTED BY THE ENGINEER. CLEAN SILT AND SOIL FROM UPSTREAM FACE OF STONE CHECK DAMS WHEN ACCUMULATION REACHES 1/2 THE HEIGHT OF THE CHECK DAM.
- KEEP ALL DRAINAGE ENTRANCES FREE OF DEBRIS DURING CONSTRUCTION. SWEEP ROADS AS REQUIRED OR DIRECTED BY THE ENGINEER.
- CLEAN SEDIMENT TRAPS AND TEMPORARY DIVERSION DITCHES WHEN THEY BECOME FULL TO 50% OF THEIR ORIGINAL VOLUME OR AS DIRECTED BY THE ENGINEER.
- REINFORCE NETTING AND EROSION CONTROL BLANKET WITH ADDITIONAL STAPLES IF IT HAS MOVED. REPAIR DAMAGE CAUSED BY WATER EROSION OR WIND AT THE END OF EACH DAY.
- REPAIR AND REPLACE STONE INLET PROTECTION WHEN STONES BECOME CLOGGED WITH SEDIMENT.
- REPAIR ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION ACTIVITIES AT OR BEFORE THE END OF EACH WORKING DAY. DAMAGE TO ANY EROSION CONTROL MEASURE AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED IMMEDIATELY.

WINTER EROSION CONTROL:

- ALL EROSION CONTROL FEATURES SUCH AS SILT FENCE AND STONE CHECK DAMS MUST BE IN PLACE PRIOR TO GROUND FREEZING.
- ALL DISTURBED AREAS OF THE SITE SHALL BE SEEDED AND MULCHED FROM SEPTEMBER 15 TO MAY 1 REGARDLESS OF WHETHER FINISHED GRADING HAS BEEN COMPLETED. WORK MAY CONTINUE THROUGH THIS PERIOD WITH WRITTEN PERMISSION FROM THE ENGINEER AND PROVIDED THE FOLLOWING WINTER EROSION CONTROLS ARE IMPLEMENTED:
 - WINTER RYE SEEDS SHALL BE SUBSTITUTED FOR ANY OTHER TEMPORARY ANNUAL GRASS SEEDS.
 - ALL EXPOSED EARTH SHALL BE MULCHED WITH 6 INCHES OF HAY OR STRAW. SLOPES GREATER THAN 5% SHALL BE COVERED WITH STAKED EROSION CONTROL MAT (NORTH AMERICAN GREEN ST5 OR APPROVED EQUIVALENT).
 - EARTHWORK SHALL ONLY TAKE PLACE DURING SUITABLE CONDITIONS, I.E. THERE SHALL BE NO EARTHWORK DURING MODERATE OR HEAVY RAINS, WET SNOW, OR THAWS.
 - PROVIDE 20' OF STABILIZED ACCESS AROUND BUILDINGS BY INSTALLING A 6" LAYER OF 4" DIA. OR SMALLER STONE.

Maintenance Chart		Erosion Control Devices - ENTER PROJECT NAME AND NUMBER HERE		
Control Device*	Action	Weekly	After Storm Event**	When Necessary**
Vegetation	Visual Inspection		▲	▲
Dry / Hydraulic Mulch	Visual Inspection	▲	▲	▲
Mulching, Netting and/or Blankets	Visual Inspection	▲	▲	▲
Channel Protection	Visual Inspection	▲	▲	▲
Silt Fence	Visual Inspection	▲	▲	▲
Stone Check Dam	Visual Inspection	▲	▲	▲
Inlet Protection	Visual Inspection	▲	▲	▲
Diversion Swales	Visual Inspection	▲	▲	▲
Curb & Gutter Containment	Visual Inspection	▲	▲	▲

* Control devices as shown on plans are to be considered a minimum and may be supplemented by request of the engineer.
** Inspect all erosion control measures as soon as possible but no later than 24 hours after any storm event that generates runoff from the site.

Winter Maintenance Schedule		Erosion Control Devices - Project Name #00-000		
Control Device*	Action	Weekly	Before/After Predicted Thaw or Rainy Period*	Frequency When Necessary**
Dry / Hydraulic Mulch	Visual Inspection	▲	▲	▲
Mulching, Netting and/or Blankets	Visual Inspection	▲	▲	▲
Channel Protection	Visual Inspection	▲	▲	▲
Silt Fence	Visual Inspection	▲	▲	▲
Stone Check Dam	Visual Inspection	▲	▲	▲
Inlet Protection	Visual Inspection	▲	▲	▲
Diversion Swales	Visual Inspection	▲	▲	▲
Curb & Gutter Containment	Visual Inspection	▲	▲	▲

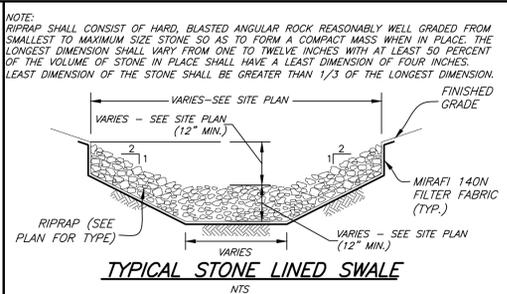
SEWER SYSTEM GENERAL NOTES:

- CONSTRUCTION:
 - PIPE INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINED IN ACCORDANCE WITH THE APPROPRIATE MANUFACTURER'S INSTALLATION GUIDE. THE PIPE SHALL BE LAID AT CONTINUOUS AND CONSTANT GRADE AT THE SLOPES SHOWN ON THE PLAN.
 - LEAKAGE TESTING: THE LEAKAGE INWARD AND OUTWARD OF A GRAVITY SEWER INCLUDING MANHOLES SHALL NOT EXCEED 200 GAL./IN DIAM./DAY. UPON COMPLETION OF CONSTRUCTION, A SEWER LINE SHALL BE TESTED IN ACCORDANCE WITH ONE OF THE FOLLOWING PROCEDURES:
 - WATER TESTING
 - PLUG OR CAP ALL SERVICE LATERALS, STUBS AND FITTINGS. PLACE A TAPPED PLUMBER'S PLUG SHOULD BE INSERTED IN THE DOWNSTREAM MANHOLE INLET SEWER. THE WATER SUPPLY CONNECTION IS MADE AT THIS POINT, BUT NEVER DIRECTLY FROM A PUBLIC WATER SUPPLY SYSTEM OR HYDRANT UNLESS A BACK FLOW PREVENTER IS USED.
 - A STANDPIPE IS TIGHTLY CONNECTED AT THE UPSTREAM END OF THE SEWER. THE HEIGHT OF THE STAND PIPE SHALL BE AT LEAST TWO FEET HIGHER THAN ANY POINT IN THE SEWER OR TWO FEET HIGHER THAN THE HIGHEST GROUND WATER TABLE, WHICHEVER IS HIGHER. A MANHOLE MAY BE USED AS A STANDPIPE.
 - WATER IS ADDED AT THE DOWNSTREAM CONNECTION IN ORDER TO AVOID TRAPPING AIR BUBBLES OR POCKETS. THE LINE SHALL BE FILLED TO THE ELEVATION DESIGNATED IN THE STANDPIPE.
 - ALLOW THE LINE TO STAND WITH WATER FOR AT LEAST A TWO HOUR STABILIZATION PERIOD OR SUCH SHORTER PERIOD AS MAY BE REQUIRED TO ACHIEVE STABILIZED READINGS OF WATER LOSS OVER THREE CONSECUTIVE 15 MINUTE PERIODS. THIS ALLOWS AIR TO ESCAPE AND ABSORPTION TO TAKE PLACE.
 - FILL THE SEWER LINE TO THE REFERENCE MARK AND CONTINUE THE TEST FOR AT LEAST ONE HOUR. MAINTAIN THE MINIMUM HEAD THROUGHOUT THE TEST, ADDING ANY VOLUME OF WATER REQUIRED AND INCLUDING THAT VOLUME IN THE LEAKAGE.
 - CONVERT THE LEAKAGE TO THE UNITS SPECIFIED.
 - IR TESTING: THE PIPE SHALL BE IR TESTED IN ACCORDANCE WITH VERMONT ENVIRONMENTAL PROTECTION RULES.

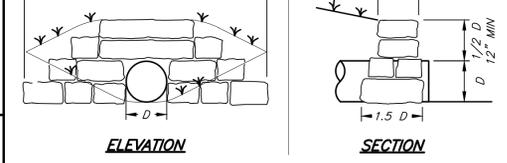
MATERIALS:

- SELECT BEDDING - SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM AND ORGANIC MATTERING. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, USE GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCHES.

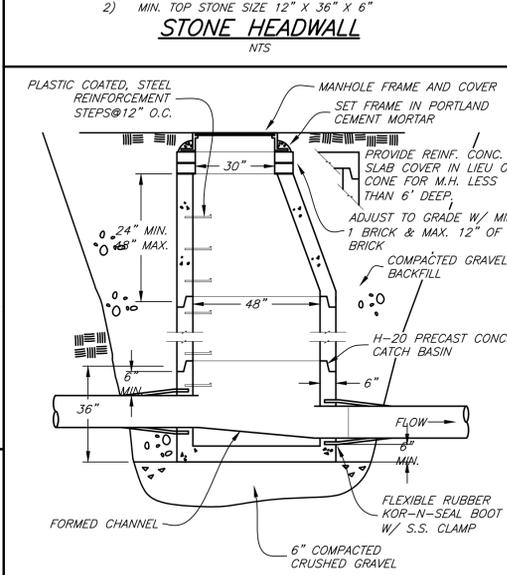
100% PASSING	1-INCH SCREEN
90-100% PASSING	3/4-INCH SCREEN
20-55% PASSING	3/8-INCH SCREEN
0-10% PASSING	#4 SIEVE
4% PASSING	#8 SIEVE
- SAND BLANKET - CLEAN SAND FREE FROM ORGANIC MATTER GRADED SO THAT 90-100% WILL PASS A 1/2-INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #20 SIEVE. BLANKET MAY BE OMITTED FOR CAST-IRON, DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
- COMMON FILL MATERIAL SHALL BE THE NATURAL EXCAVATED MATERIAL EXCLUDING DEBRIS, ORGANIC MATTER AND CLAY & STONES LARGER THAN 6 INCHES. THE CONTRACTOR SHALL COMPACT THE TRENCH BACKFILL TO 95% MODIFIED PROCTOR MAXIMUM DENSITY.
- PVC - POLYVINYL CHLORIDE PIPE; ASTM D1785; SCH 40; SOLVENT WELDED PER MANUFACTURER'S SPECIFICATIONS.
- PVC - POLYVINYL CHLORIDE PIPE; ASTM F-891; SDR 35; GASKET JOINT PER MANUFACTURER'S SPECIFICATIONS.
- PIPE INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINED IN ACCORDANCE WITH THE APPROPRIATE MANUFACTURER'S INSTALLATION GUIDE. THE PIPE SHALL BE LAID AT CONTINUOUS AND CONSTANT GRADE AT THE SLOPES SHOWN ON THE PLAN.
- MATERIALS OR EQUIPMENT IDENTIFIED ON THE PLANS BY REFERENCE TO MANUFACTURER'S NAMES AND NUMBERS ARE INTENDED TO ESTABLISH A STANDARD. MATERIALS AND EQUIPMENT OF OTHER MANUFACTURERS THAT ARE IN THE OPINION OF THE ENGINEER, OF EQUAL QUALITY AND FUNCTION WILL BE ACCEPTABLE. THE CONTRACTOR SHALL SUBMIT SUPPORTING DATA TO THE ENGINEER TO DETERMINE EQUALITY AND WILL BE RESPONSIBLE FOR ALL INCIDENTAL COORDINATION AND/OR FITTING TOGETHER AS REQUIRED.



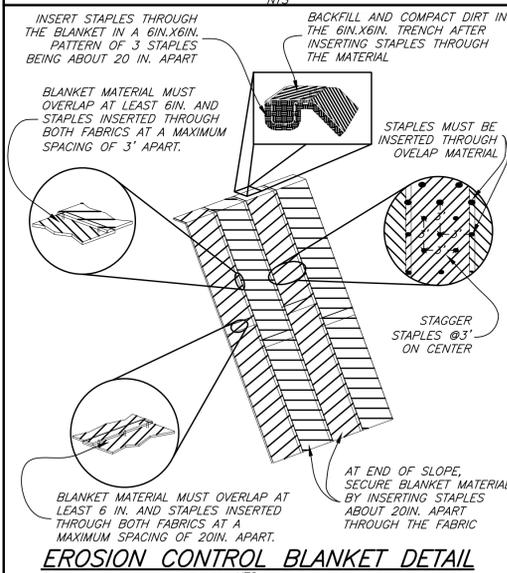
TYPICAL STONE LINED SWALE
NTS



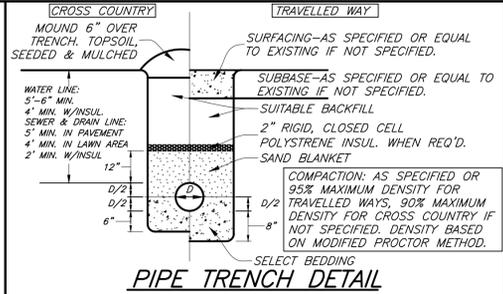
STONE HEADWALL
NTS



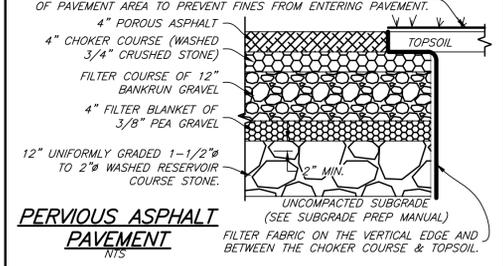
MANHOLE DETAIL
NTS



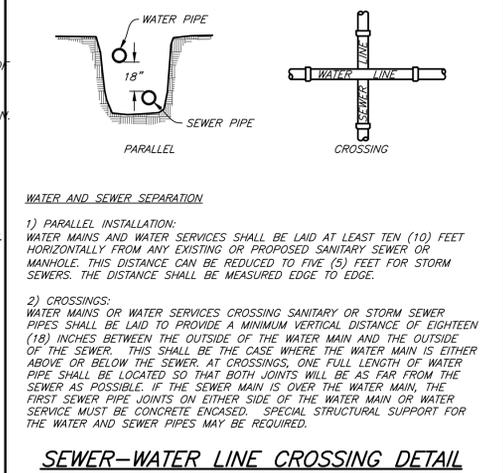
EROSION CONTROL BLANKET DETAIL
NTS



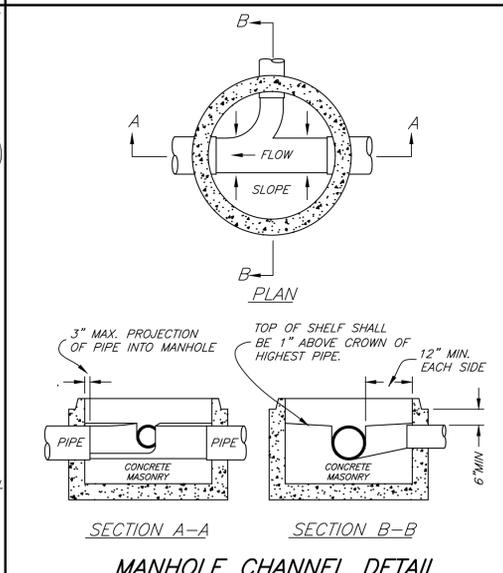
PIPE TRENCH DETAIL
NTS



PERVIOUS ASPHALT PAVEMENT
NTS



SEWER-WATER LINE CROSSING DETAIL
NTS



MANHOLE CHANNEL DETAIL
NTS

STEVENS & ASSOCIATES, P.C.
SMART DESIGN FOR LIVABLE COMMUNITIES

S&A

ARCHITECTS | ENGINEERS
LANDSCAPE ARCHITECTS | PLANNERS

95 MAIN ST. | P.O. BOX 1586
BRATTLEBORO, VT 05302
Ph: 802-257-9229 | F: 802-258-3892
WWW.STEVENS-ASSOC.COM

PURPOSE OF DRAWING:
ZONING PERMIT SUBMISSION
OCTOBER 23, 2015
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101
JOHN SEITZ
DRIVE
IMPROVEMENTS
BRATTLEBORO, VERMONT 05301

PREPARED FOR:
G.S. PRECISION
101 JOHN SEITZ DRIVE
BRATTLEBORO, VERMONT 05301

DATE:
REVISION:

DETAILS

DES. BY	RKS
DWN. BY	PBG
CHKD. BY	BDS
SCALE	AS SHOWN
DATE	10/23/15
PROJECT NUM:	15-025
DWG. NO.	C-6

SHEET 6 OF 6

PURPOSE OF DRAWING:
 ZONING PERMIT SUBMISSION
 OCTOBER 23, 2015
 NOT FOR CONSTRUCTION

101 JOHN SEITZ DRIVE IMPROVEMENTS
 BRATTLEBORO, VERMONT 05301

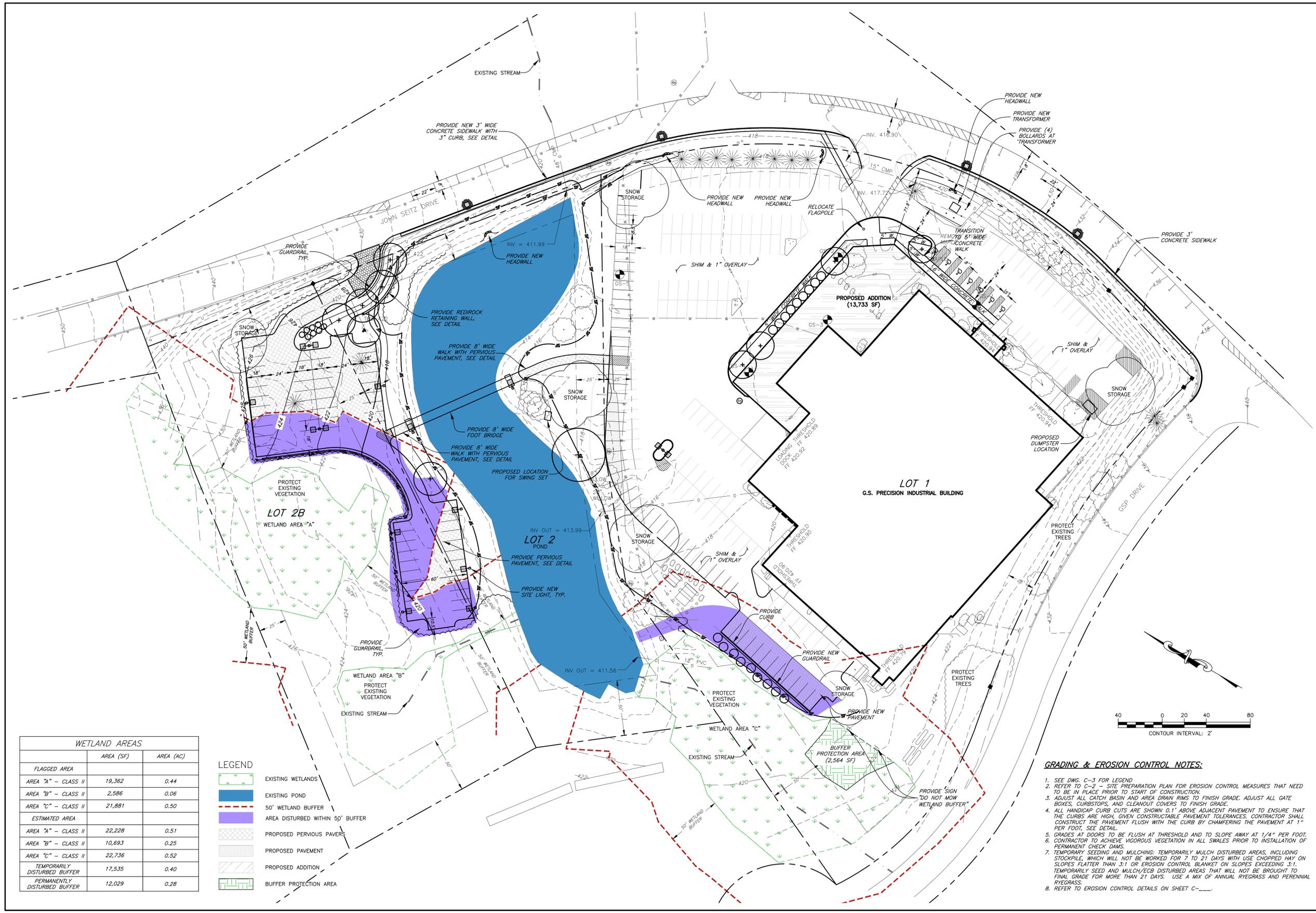
PREPARED FOR:
G.S. PRECISION
 101 JOHN SEITZ DRIVE
 BRATTLEBORO, VERMONT 05301

DATE:	
REVISION:	

WETLAND EXHIBIT

DES. BY	RKS
DWN. BY	SJW
CHKD. BY	BDS
SCALE	1" = 40'
DATE	10/13/15
PROJECT NUM:	15-025
DWG. NO.	

SK-W1



WETLAND AREAS		
FLAGGED AREA	AREA (SF)	AREA (AC)
AREA "A" - CLASS II	19,362	0.44
AREA "B" - CLASS II	2,586	0.06
AREA "C" - CLASS II	21,881	0.50
ESTIMATED AREA		
AREA "A" - CLASS II	22,228	0.51
AREA "B" - CLASS II	10,693	0.25
AREA "C" - CLASS II	22,736	0.52
TEMPORARILY DISTURBED BUFFER	17,535	0.40
PERMANENTLY DISTURBED BUFFER	12,029	0.28

LEGEND

	EXISTING WETLANDS
	EXISTING POND
	50' WETLAND BUFFER
	AREA DISTURBED WITHIN 50' BUFFER
	PROPOSED PERVIOUS PAVERS
	PROPOSED PAVEMENT
	PROPOSED ADDITION
	BUFFER PROTECTION AREA

- GRADING & EROSION CONTROL NOTES:**
- SEE DWG. C-3 FOR LEGEND
 - REFER TO C-2 - SITE PREPARATION PLAN FOR EROSION CONTROL MEASURES THAT NEED TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.
 - ADJUST ALL CATCH BASIN AND AREA DRAIN RIMS TO FINISH GRADE. ADJUST ALL GATE BOXES, CURBSTOPS, AND CLEARDOUT COVERS TO FINISH GRADE.
 - ALL HANDICAP CURB CUTS ARE SHOWN 0.1' ABOVE ADJACENT PAVEMENT TO ENSURE THAT THE CURBS ARE HIGH, GIVEN CONSTRUCTABLE PAVEMENT TOLERANCES. CONTRACTOR SHALL CONSTRUCT THE PAVEMENT FLUSH WITH THE CURB BY CHAMFERING THE PAVEMENT AT 1" PER FOOT. SEE DETAIL.
 - GRADES AT DOORS TO BE FLUSH AT THRESHOLD AND TO SLOPE AWAY AT 1/4" PER FOOT.
 - CONTRACTOR TO ACHIEVE VIGOROUS VEGETATION IN ALL SWALES PRIOR TO INSTALLATION OF PERMANENT CHECK DAMS.
 - TEMPORARY SEEDING AND MULCHING: TEMPORARILY MULCH DISTURBED AREAS, INCLUDING STOCKPILE, WHICH WILL NOT BE WORKED FOR 7 TO 21 DAYS WITH USE CHOPPED HAY ON SLOPES FLATTER THAN 3:1 OR EROSION CONTROL BLANKET ON SLOPES EXCEEDING 3:1. TEMPORARILY SEED AND MULCH/VEG DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR MORE THAN 21 DAYS. USE A MIX OF ANNUAL RYEGRASS AND PERENNIAL RYEGRASS.
 - REFER TO EROSION CONTROL DETAILS ON SHEET C-.....

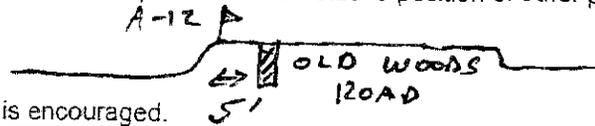


Appendix B

Soil Information



SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on p



Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-20"	C (FILL)	2.5Y4/3	None to 20"	Gravelly Sand

HYDRIC SOIL INDICATOR(S):

NONE

REFERENCE(S):

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
Soil drainage class:
Depth to active water table:
NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hydric soils criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Wetland hydrology criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

PROJECT TITLE: GS Precision, Brattleboro

TRANSECT: 51

PLOT: OPLAND
SIDE A-12

PROJECT TITLE: GS PRECISION, BRATTLEBORO TRANSECT: 1

PLOT: UPLAND
SIDE OF FLAG

DELINEATOR(S): WARD SMITH, PWS

DATE: 8/19/15

A-12

VEGETATION	Stratum and Species	Dominance Ratio	Percent Dominance	DOM	NWI Status
<u>Trees:</u>					
	Hemlock (<i>Tsuga canadensis</i>) 24", 22", 11"	6.442/11.602	56%	X	FACU
	White Pine (<i>Pinus strobus</i>) 24", 17", 9"	5.16/11.602	44%	X	FACU
<u>Saplings:</u>					
	Black Birch (<i>Betula lenta</i>)	15/35	43%	X	FACU
	Sugar Maple (<i>Acer saccharum</i>)	10/35	29%	X	FACU
	Striped Maple (<i>Acer pensylvanicum</i>)	5/35	14%		FACU
	Ironwood (<i>Carpinus caroliniana</i>)	5/35	14%		FAC
<u>Herbs:</u>					
	Interrupted Fern (<i>Osmunda claytoniana</i>)	5/25	20%	X	FAC
	Evergreen Woodfern (<i>Dryopteris intermedia</i>)	5/25	20%	X	FACU
	Sedges (<i>Carex</i> spp.) - unidentified, not in seed	5/25	20%	X	—
	Green Ash (<i>Fraxinus pennsylvanicus</i>) seedlings	5/25	12%		FACW
	Common Speedwell (<i>Veronica officinalis</i>)	3/25	12%		FACU
	Lady Fern (<i>Athyrium filix-femina</i>)	2/25	8%		FAC
	Asters (<i>Aster</i> spp.)	2/25	8%		—

HYDROPHYTES

1

OBL FACW FAC *OTHER

Hydrophytes Subtotal (A): 1

NON-HYDROPHYTES

5

FAC- FACU UPL

Non-hydrophytes Subtotal (B): 5

PERCENT HYDROPHYTES (100A/A+B): 17%

HYDROLOGY

RECORDED DATA

Stream, lake, or tidal gage

Identification: _____

Aerial photography

Identification: _____

Other

Identification: _____

NO RECORDED DATA

OBSERVATIONS:

Depth to Free Water: >20"

Depth to Saturation (including capillary fringe): >20"

Altered Hydrology (explain): _____

Inundated

Saturated in upper 12"

Water Marks

Drift Lines

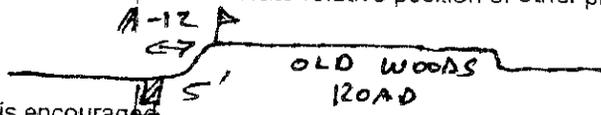
Sediment Deposits

Drainage Patterns within Wetla

OTHER (explain):

NO EVIDENCE OF HYDROLOGY

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.



Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-6"	A	2.5Y 3/2	NONE	FINE SANDY LOAM
6-14+"	B _w	2.5Y 4/3	c2p (2.5Y 4/2) c2p (10YR 4/6)	FINE SANDY LOAM
refund @ 14"				

HYDRIC SOIL INDICATOR(S): **XI** (depleted matrix @ 20" ASSUMED) REFERENCE(S): FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND (2004)

OPTIONAL SOIL DATA REFERENCE(S):
 Taxonomic subgroup:
 Soil drainage class:
 Depth to active water table:
 NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Dominant Trees (white oak) are on upland "islands" within wetland. Low-lying areas largely un-vegetated.
Hydric soils criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wetland hydrology criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

PROJECT TITLE: **GS PRECISION, BRATTLEBORO** TRANSECT: **1** PLOT: **WETLAND SIDE A-12**

PROJECT TITLE: GS PRECISION, BRATTLEBORO TRANSECT: 1

PLOT: WETLAND SIDE OF A-12

DELINEATOR(S): WARD SMITH, PWS

DATE: 8/19/15

VEGETATION	Stratum and Species	Dominance Ratio	Percent Dominance	DOM	NWI Status
<u>TREES:</u>					
	White Oak (<i>Quercus alba</i>)	32" 32"	11.16/13.74	84%	X FACU
	Hemlock (<i>Tsuga canadensis</i>)	12", 12", 8", 7", 6", 5"	2.576/13.74	16%	FACU
<u>SAPLINGS:</u>					
	BITTERNUT HICKORY (<i>Carya cordiformis</i>)	5/10	50%	X	FACU
	Hemlock (<i>Tsuga canadensis</i>)	5/10	50%	X	FACU
<u>SHRUBS:</u>					
	SPICEBUSH (<i>Lindera benzoin</i>)	5/5	100%	X	FACW
<u>HERBS:</u>					
	Jewelweed (<i>Impatiens capensis</i>)	5/5	100%	X	FACW

HYDROPHYTES

2
 OBL FACW FAC *OTHER

Hydrophytes Subtotal (A): 2

NON-HYDROPHYTES

3
 FAC- FACU UPL

Non-hydrophytes Subtotal (B): 2

PERCENT HYDROPHYTES (100A/A+B): 40%

HYDROLOGY

- RECORDED DATA
 Stream, lake, or tidal gage Identification: _____
 Aerial photography Identification: _____
 Other Identification: _____

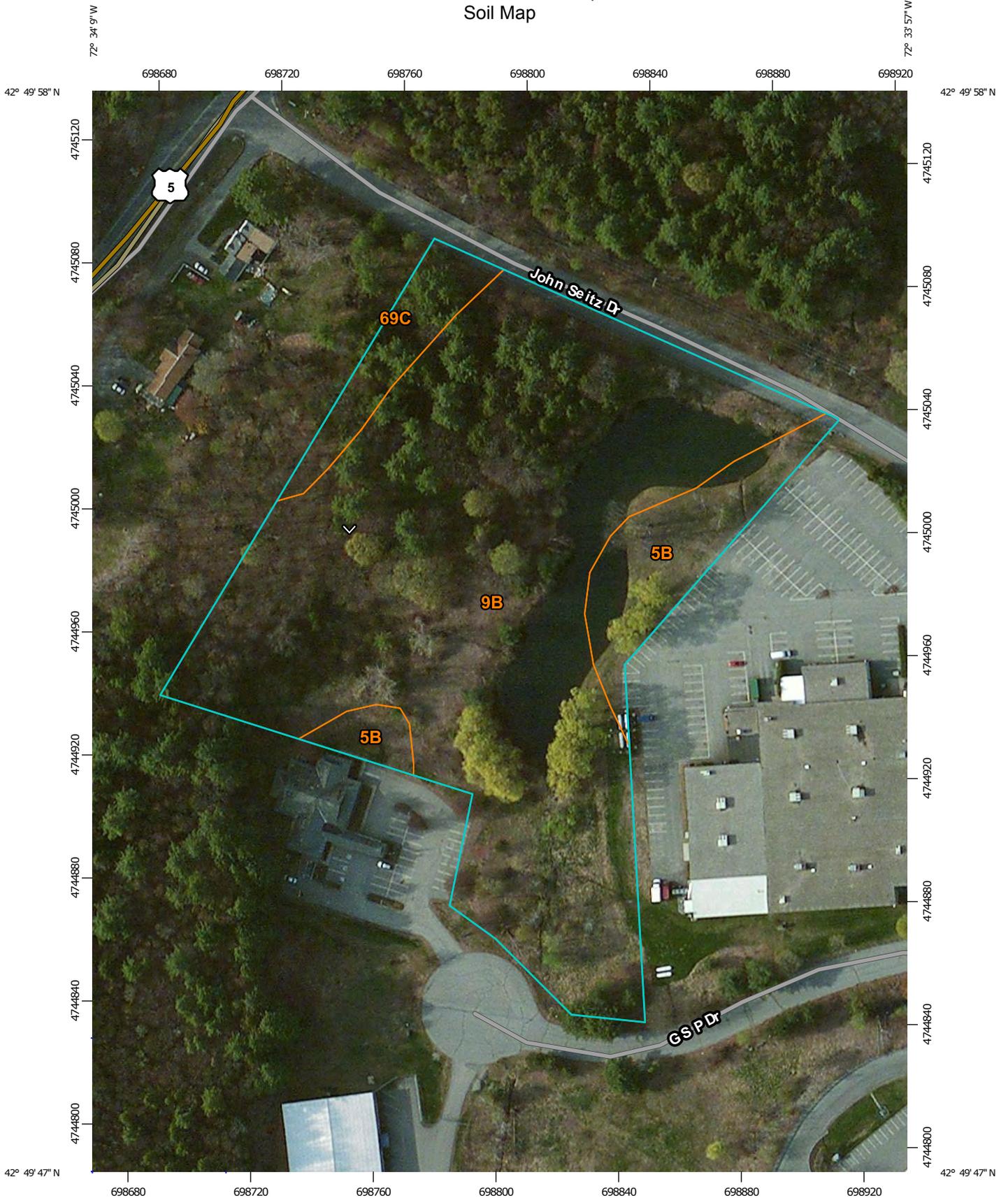
NO RECORDED DATA

OBSERVATIONS:

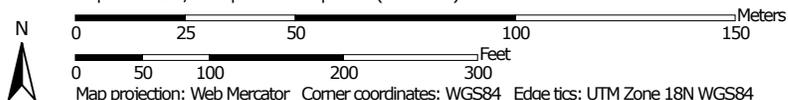
Depth to Free Water: >14"
 Depth to Saturation (including capillary fringe): >14"
 Altered Hydrology (explain): _____

- Inundated Saturated in upper 12" Water Marks Drift Lines Sediment Deposits Drainage Patterns within Wetland
- OTHER (explain): WATER STAINED LEAVES W DEPRESSION

Custom Soil Resource Report Soil Map



Map Scale: 1:1,710 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Windham County, Vermont
 Survey Area Data: Version 19, Sep 25, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 9, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Windham County, Vermont (VT025)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5B	Windsor loamy sand, 3 to 8 percent slopes	0.7	11.1%
9B	Deerfield fine sandy loam, 2 to 8 percent slopes	5.3	83.5%
69C	Macomber-Taconic complex, 8 to 15 percent slopes, very rocky	0.3	5.4%
Totals for Area of Interest		6.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

Custom Soil Resource Report

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Windham County, Vermont

5B—Windsor loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svkf

Elevation: 0 to 1,210 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor, Loamy Sand

Setting

Landform: Dunes, outwash plains, deltas, outwash terraces

Landform position (three-dimensional): Tread, riser

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand

C - 25 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Minor Components

Hinckley, loamy sand

Percent of map unit: 10 percent

Custom Soil Resource Report

Landform: Outwash plains, deltas, eskers, kames

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise

Down-slope shape: Convex

Across-slope shape: Linear, convex

Deerfield, loamy sand

Percent of map unit: 5 percent

Landform: Outwash plains, deltas, terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear

9B—Deerfield fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9gjp

Elevation: 90 to 1,000 feet

Mean annual precipitation: 30 to 50 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 120 to 180 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Terraces

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam

H2 - 8 to 21 inches: loamy fine sand

H3 - 21 to 60 inches: sand

Properties and qualities

Slope: 2 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: About 18 to 36 inches

Custom Soil Resource Report

Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B

Minor Components

Unadilla

Percent of map unit: 4 percent

Belgrade

Percent of map unit: 4 percent

Windsor

Percent of map unit: 4 percent
Landform: Terraces

Walpole

Percent of map unit: 3 percent
Landform: Depressions

69C—Macomber-Taconic complex, 8 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 9ghz
Elevation: 90 to 4,400 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 30 to 52 degrees F
Frost-free period: 30 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Macomber and similar soils: 50 percent
Taconic and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Macomber

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Custom Soil Resource Report

Typical profile

H1 - 0 to 2 inches: channery silt loam
H2 - 2 to 34 inches: very channery silt loam
R - 34 to 44 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C

Description of Taconic

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountaintop, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Typical profile

H1 - 0 to 2 inches: channery loam
H2 - 2 to 19 inches: very channery loam
R - 19 to 29 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Minor Components

Rock outcrop

Percent of map unit: 5 percent

Hubbardton

Percent of map unit: 5 percent

Fullam

Percent of map unit: 4 percent

Brayton

Percent of map unit: 3 percent

Landform: Depressions

Dummerston

Percent of map unit: 3 percent

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

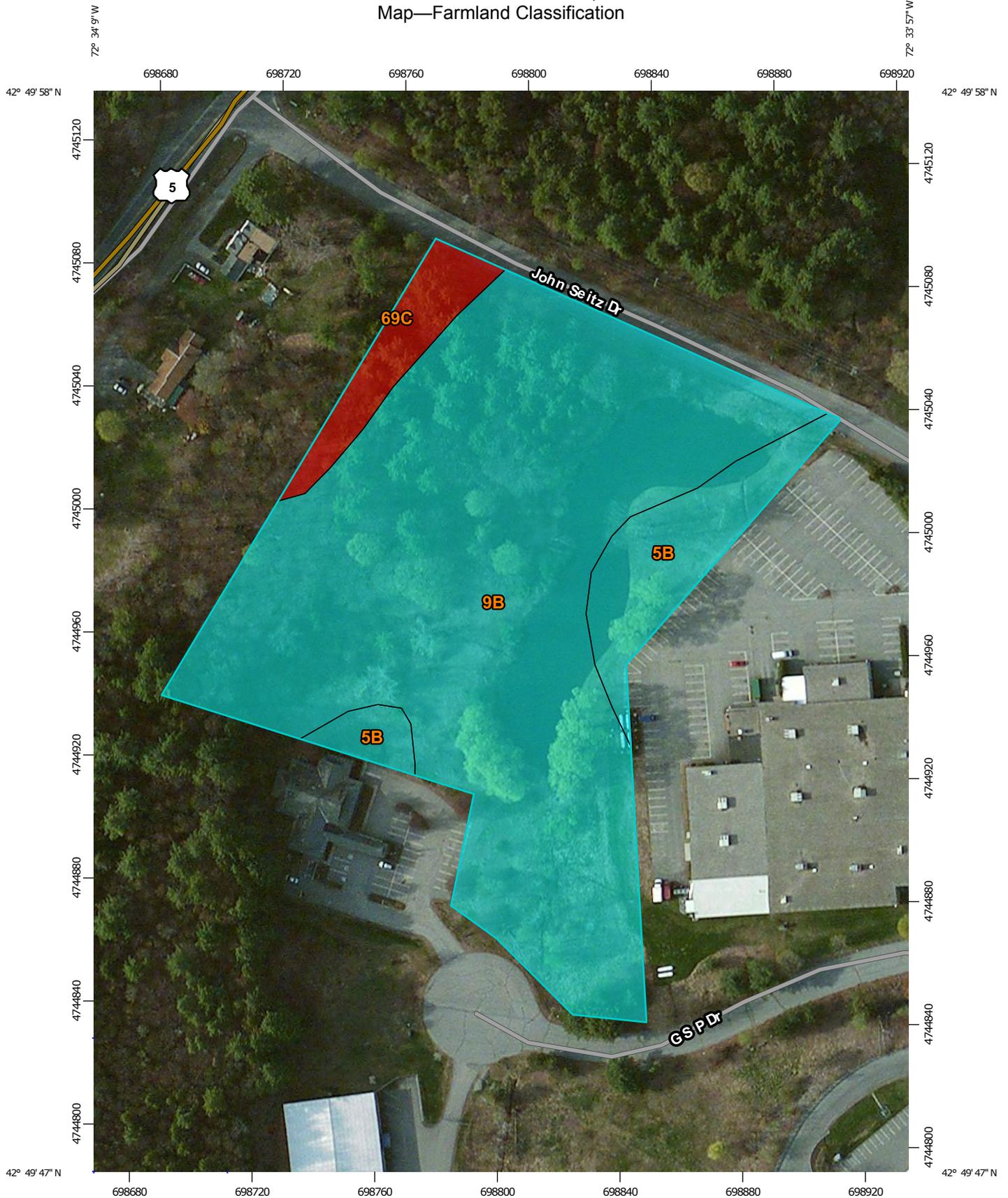
Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

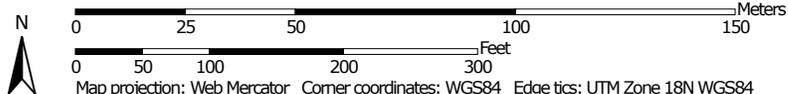
Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Custom Soil Resource Report Map—Farmland Classification



Map Scale: 1:1,710 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Soil Rating Lines

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained

-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Soil Rating Points

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Water Features

MAP INFORMATION

-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Windham County, Vermont
Survey Area Data: Version 19, Sep 25, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 9, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Farmland Classification

Farmland Classification— Summary by Map Unit — Windham County, Vermont (VT025)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
5B	Windsor loamy sand, 3 to 8 percent slopes	Farmland of statewide importance	0.7	11.1%
9B	Deerfield fine sandy loam, 2 to 8 percent slopes	Farmland of statewide importance	5.3	83.5%
69C	Macomber-Taconic complex, 8 to 15 percent slopes, very rocky	Not prime farmland	0.3	5.4%
Totals for Area of Interest			6.4	100.0%

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Custom Soil Resource Report

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

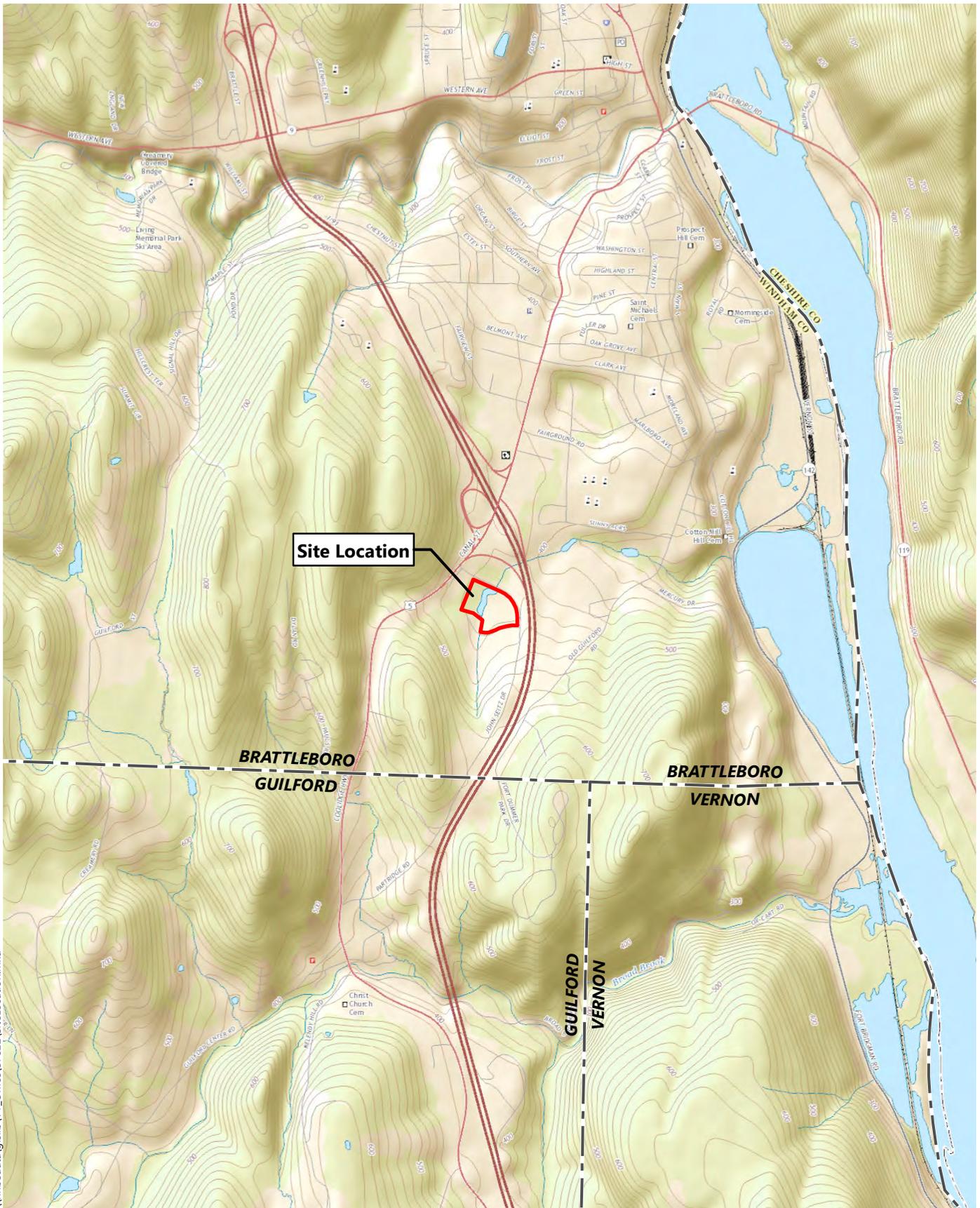
Hydrologic Soil Group and Surface Runoff—Windham County, Vermont			
Map symbol and soil name	Pct. of map unit	Surface Runoff	Hydrologic Soil Group
5B—Windsor loamy sand, 3 to 8 percent slopes			
Windsor, loamy sand	85	Low	A
9B—Deerfield fine sandy loam, 2 to 8 percent slopes			
Deerfield	85	Low	B
69C—Macomber-Taconic complex, 8 to 15 percent slopes, very rocky			
Macomber	50	High	C
Taconic	30	Very high	D



Appendix C

Site Location Map





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101 John Seitz Drive Improvements | Brattleboro, VT

- Legend**
-  Site Location
 -  Municipal Boudnary

Site Location Map

Source: VCGI, ArcGIS Online, VHB



Appendix D

Representative Site Photos



**Representative Wetland Photographs, October 14, 2015
GS Precision Expansion Project, Brattleboro, Vermont**



Photo 1: View southwest of the detention pond from the edge of the existing parking lot.



Photo 2: View southwest from the edge of the existing parking lot towards the edge of Wetland Area C.

Representative Wetland Photographs, October 14, 2015 GS Precision Expansion Project, Brattleboro, Vermont



Photo 3: View west from the edge of the existing parking lot looking towards the detention pond.



Photo 4: View east of Wetland Area A from a knoll between Wetland Area A and Wetland Area B. The detention basin and existing parking lot are visible in the background.

**Representative Wetland Photographs, October 14, 2015
GS Precision Expansion Project, Brattleboro, Vermont**



Photo 5: View north of Wetland Area A from a knoll between Wetland Area A and Wetland Area B.



Photo 6: View west of the northernmost side of Wetland Area A from an upland area between the pond and Wetland Area A.

**Representative Wetland Photographs, October 14, 2015
GS Precision Expansion Project, Brattleboro, Vermont**



Photo 7: View east of stream running through Wetland Area B.



Photo 8: View southwest of the southern end of Wetland Area B.

**Representative Wetland Photographs, October 14, 2015
GS Precision Expansion Project, Brattleboro, Vermont**



Photo 9: View west looking upstream at the intermittent stream running through Wetland Area B.



Photo 10: View east looking downstream at the intermittent stream running through Wetland Area B.



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- Legend
- Photo Location
 - Site Location
 - Municipal Boudnary

101 John Seitz Drive Improvements

Brattleboro, VT

Photo Location Map



Appendix E

Wetland Evaluation Forms



VERMONT WETLAND EVALUATION FORM

Project Name: **GS Precision Expansion Project, Wetland Area A** Project #: **57822.00**

Date: **10/29/2015**

Investigator: **Sherrie Trefry, VHB**

SUMMARY OF FUNCTIONAL EVALUATION:

Each function gets a score of 0= not present; L = Low; P = Present; or H = High.

1. Water Storage for Flood Water and Storm Runoff	L	6. Rare, Threatened, and Endangered Species Habitat	0
2. Surface & Ground Water Protection	L	7. Education and Research in Natural Sciences	0
3. Fish Habitat	0	8. Recreational Value and Economic Benefits	0
4. Wildlife Habitat	0	9. Open Space and Aesthetics	0
5. Exemplary Wetland Natural Community	0	10. Erosion Control through Binding and Stabilizing the Soil	0

Note:

- **When to use this form:** This is a field form to help you compile data needed to evaluate the 10 possible functions and values of a wetland as described in the Vermont Wetland Rules. All information in this form is replicated in the applications for both wetland determinations and wetland permits.
- **Both a desktop review and field examination** should be employed to accurately determine surrounding land use, hydrology, hydroperiod, vegetation, position in the landscape, and physical attributes.
- **The entire wetland or wetland complex** in question must be evaluated to determine the level of function in all ten (10) categories for accurate classification. A wetland complex can be defined as a series of interconnected wetland types.
- **The surrounding upland and outflow area** of the wetland should be examined to determine land use, development, nearby natural resources, and hydrology. The surrounding land use, previous development, and cumulative impacts may play a role in the current function of the wetland. For best results please read all descriptions prior to scoring activity.
- **Evaluation:** The first portion in each section determines whether the wetland does or does not provide the function. If none of the conditions listed in the first section are met, proceed

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to the next section. If any of these conditions are met, determine if the wetland provides this function at a higher or lower level based on the information listed in the subsequent sections.

- **Presumptions:** Please note that many wetlands are already presumed to be significant under the Vermont Wetland Rules. A wetland is presumed to be significant if:
 - The wetland is mapped on the VSWI map
 - The wetland is contiguous to a VSWI mapped wetland
 - The wetland meets the presumptions of significance under Section 4.6
 - The wetland has a preliminary determination that it is Class II

1. Water 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:

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.
- 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.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.

- History of downstream flood damage to public or private property.
- 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.
 - 1. Developed public or private property.
 - 2. Stream banks susceptible to scouring and erosion.
 - 3. Important habitat for aquatic life.
- The wetland is large in size and naturally vegetated.

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- Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.
 - 1. A large amount of impervious surface in urbanized areas.
 - 2. Relatively impervious soils.
 - 3. Steep slopes in the adjacent areas.

2. Surface and Ground Water Protection

Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- Constricted or no outlets.
- Low water velocity through dense, persistent vegetation.
- Hydroperiod permanently flooded or saturated.
- Wetlands in depositional environments with persistent vegetation wider than 20 feet.
- Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
- Presence of seeps or springs.
- Wetland contains a high amount of microtopography that helps slow and filter surface water.
- Position in the landscape indicates the wetland is a headwaters area.
- Wetland is adjacent to surface waters.
- Wetland recharges a drinking water source.
- Water sampling indicates removal of pollutants or nutrients.
- Water sampling indicates retention of sediments or organic matter.
- Fine mineral soils and alkalinity not low.
- 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.

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.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.

- Presence of dead forest or shrub areas in sufficient amounts to result in diminished

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nutrient uptake.

- Presence of ditches or channels that confine water and restrict contact of water with vegetation.
 - 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.
 - Current use in the wetland results in disturbance that compromises this function.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
- The wetland is adjacent to a well head or source protection area, and provides ground water recharge.
 - The wetland provides flows to Class A surface waters.
 - The wetland contributes to the protection or improvement of water quality of any impaired waters.
 - The wetland is large in size and naturally vegetated.

3. Fish Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
- 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.
 - 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.
 - Documented or professionally judged spawning habitat for northern pike.
 - Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.
 - 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.

4. Wildlife Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.
 - 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 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.

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- 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.

- 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

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developed areas (vernal pools and seeps are generally small in size, so this does not apply).

- 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.
- The current use in the wetland results in frequent cutting, mowing or other disturbance.
- The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The wetland complex is large in size and high in quality.
 - The habitat has the potential to support several species based on the assessment above.
 - Wetland is associated with an important wildlife corridor.
 - The wetland has been identified by ANR-F&W as important habitat.

5. Exemplary Wetland Natural Community

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.

The wetland is also likely to be significant if any of the following conditions are met:

- 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.
- Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:
 - Deep peat accumulation reflecting a long history of wetland formation;
 - Forested wetlands displaying very old trees and other old growth characteristics;
 - A wetland natural community that is at the edge of the normal range for that type;

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- A wetland mosaic containing examples of several to many wetland community types; or
- A large wetland complex with examples of several wetland community types.

6. Rare, Threatened, and Endangered Species Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.

The wetland is also likely to be significant if any of the following apply:

 - There is credible documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;
 - There is credible documentation that threatened or endangered species have been present in past 10 years;
 - 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;
 - There is credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

List name of species and ranking:

7. Education and Research in Natural Sciences

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
 - Owned by or leased to a public entity dedicated to education or research.
 - History of use for education or research.
 - Has one or more characteristics making it valuable for education or research.

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8. Recreational Value and Economic Benefits

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
 - Used for, or contributes to, recreational activities.
 - Provides economic benefits.
 - Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.
 - Used for harvesting of wild foods.

Comments:

9. Open Space and Aesthetics

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - Can be readily observed by the public; and
 - Possesses special or unique aesthetic qualities; or
 - Has prominence as a distinct feature in the surrounding landscape;
 - Has been identified as important open space in a municipal, regional or state plan.

10. Erosion Control through Binding and Stabilizing the Soil

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - Erosive forces such as wave or current energy are present and any of the following are present as well:
 - Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.
 - Good interspersion of persistent emergent vegetation and water along course of water flow.
 - Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.

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What type of erosive forces are present?

- Lake fetch and waves
- High current velocities
- Water level influenced by upstream impoundment

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.

- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.
 - The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The stream contains high sinuosity.
 - Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.

VERMONT WETLAND EVALUATION FORM

Project Name: **GS Precision Expansion Project, Wetland Area B** Project #: **57822.00**

Date: **11/02/2015**

Investigator: **Sherrie Trefry, VHB**

SUMMARY OF FUNCTIONAL EVALUATION:

Each function gets a score of 0= not present; L = Low; P = Present; or H = High.

1. Water Storage for Flood Water and Storm Runoff <input type="text" value="P"/>	6. Rare, Threatened, and Endangered Species Habitat <input type="text" value="0"/>
2. Surface & Ground Water Protection <input type="text" value="P"/>	7. Education and Research in Natural Sciences <input type="text" value="0"/>
3. Fish Habitat <input type="text" value="0"/>	8. Recreational Value and Economic Benefits <input type="text" value="0"/>
4. Wildlife Habitat <input type="text" value="0"/>	9. Open Space and Aesthetics <input type="text" value="0"/>
5. Exemplary Wetland Natural Community <input type="text" value="0"/>	10. Erosion Control through Binding and Stabilizing the Soil <input type="text" value="P"/>

Note:

- **When to use this form:** This is a field form to help you compile data needed to evaluate the 10 possible functions and values of a wetland as described in the Vermont Wetland Rules. All information in this form is replicated in the applications for both wetland determinations and wetland permits.
- **Both a desktop review and field examination** should be employed to accurately determine surrounding land use, hydrology, hydroperiod, vegetation, position in the landscape, and physical attributes.
- **The entire wetland or wetland complex** in question must be evaluated to determine the level of function in all ten (10) categories for accurate classification. A wetland complex can be defined as a series of interconnected wetland types.
- **The surrounding upland and outflow area** of the wetland should be examined to determine land use, development, nearby natural resources, and hydrology. The surrounding land use, previous development, and cumulative impacts may play a role in the current function of the wetland. For best results please read all descriptions prior to scoring activity.
- **Evaluation:** The first portion in each section determines whether the wetland does or does not provide the function. If none of the conditions listed in the first section are met, proceed

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to the next section. If any of these conditions are met, determine if the wetland provides this function at a higher or lower level based on the information listed in the subsequent sections.

- **Presumptions:** Please note that many wetlands are already presumed to be significant under the Vermont Wetland Rules. A wetland is presumed to be significant if:
 - The wetland is mapped on the VSWI map
 - The wetland is contiguous to a VSWI mapped wetland
 - The wetland meets the presumptions of significance under Section 4.6
 - The wetland has a preliminary determination that it is Class II

1. Water 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:

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.
- 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.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.

- History of downstream flood damage to public or private property.
- 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.
 - 1. Developed public or private property.
 - 2. Stream banks susceptible to scouring and erosion.
 - 3. Important habitat for aquatic life.
- The wetland is large in size and naturally vegetated.

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- Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.
 - 1. A large amount of impervious surface in urbanized areas.
 - 2. Relatively impervious soils.
 - 3. Steep slopes in the adjacent areas.

2. Surface and Ground Water Protection

Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- Constricted or no outlets.
- Low water velocity through dense, persistent vegetation.
- Hydroperiod permanently flooded or saturated.
- Wetlands in depositional environments with persistent vegetation wider than 20 feet.
- Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
- Presence of seeps or springs.
- Wetland contains a high amount of microtopography that helps slow and filter surface water.
- Position in the landscape indicates the wetland is a headwaters area.
- Wetland is adjacent to surface waters.
- Wetland recharges a drinking water source.
- Water sampling indicates removal of pollutants or nutrients.
- Water sampling indicates retention of sediments or organic matter.
- Fine mineral soils and alkalinity not low.
- 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.

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.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.

- Presence of dead forest or shrub areas in sufficient amounts to result in diminished

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nutrient uptake.

- Presence of ditches or channels that confine water and restrict contact of water with vegetation.
- 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.
- Current use in the wetland results in disturbance that compromises this function.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The wetland is adjacent to a well head or source protection area, and provides ground water recharge.
 - The wetland provides flows to Class A surface waters.
 - The wetland contributes to the protection or improvement of water quality of any impaired waters.
 - The wetland is large in size and naturally vegetated.

3. Fish Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.
 - 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.
 - Documented or professionally judged spawning habitat for northern pike.
 - Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.
 - 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.

4. Wildlife Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.
 - 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 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.

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- 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.

- 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

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developed areas (vernal pools and seeps are generally small in size, so this does not apply).

- 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.
- The current use in the wetland results in frequent cutting, mowing or other disturbance.
- The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The wetland complex is large in size and high in quality.
 - The habitat has the potential to support several species based on the assessment above.
 - Wetland is associated with an important wildlife corridor.
 - The wetland has been identified by ANR-F&W as important habitat.

5. Exemplary Wetland Natural Community

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.

The wetland is also likely to be significant if any of the following conditions are met:

- 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.
- Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:
 - Deep peat accumulation reflecting a long history of wetland formation;
 - Forested wetlands displaying very old trees and other old growth characteristics;
 - A wetland natural community that is at the edge of the normal range for that type;

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- A wetland mosaic containing examples of several to many wetland community types; or
- A large wetland complex with examples of several wetland community types.

6. Rare, Threatened, and Endangered Species Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.

The wetland is also likely to be significant if any of the following apply:

 - There is credible documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;
 - There is credible documentation that threatened or endangered species have been present in past 10 years;
 - 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;
 - There is credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

List name of species and ranking:

7. Education and Research in Natural Sciences

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
 - Owned by or leased to a public entity dedicated to education or research.
 - History of use for education or research.
 - Has one or more characteristics making it valuable for education or research.

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8. Recreational Value and Economic Benefits

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
 - Used for, or contributes to, recreational activities.
 - Provides economic benefits.
 - Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.
 - Used for harvesting of wild foods.

Comments:

9. Open Space and Aesthetics

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - Can be readily observed by the public; and
 - Possesses special or unique aesthetic qualities; or
 - Has prominence as a distinct feature in the surrounding landscape;
 - Has been identified as important open space in a municipal, regional or state plan.

10. Erosion Control through Binding and Stabilizing the Soil

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - Erosive forces such as wave or current energy are present and any of the following are present as well:
 - Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.
 - Good interspersion of persistent emergent vegetation and water along course of water flow.
 - Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.

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What type of erosive forces are present?

- Lake fetch and waves
- High current velocities
- Water level influenced by upstream impoundment

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.

- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.
 - The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The stream contains high sinuosity.
 - Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.

VERMONT WETLAND EVALUATION FORM

Project Name: **GS Precision Expansion Project, Wetland Area C** Project #: **57822.00**

Date: **11/02/2015**

Investigator: **Sherrie Trefry, VHB**

SUMMARY OF FUNCTIONAL EVALUATION:

Each function gets a score of 0= not present; L = Low; P = Present; or H = High.

1. Water Storage for Flood Water and Storm Runoff <input style="float: right;" type="text" value="P"/>	6. Rare, Threatened, and Endangered Species Habitat <input style="float: right;" type="text" value="0"/>
2. Surface & Ground Water Protection <input style="float: right;" type="text" value="P"/>	7. Education and Research in Natural Sciences <input style="float: right;" type="text" value="0"/>
3. Fish Habitat <input style="float: right;" type="text" value="0"/>	8. Recreational Value and Economic Benefits <input style="float: right;" type="text" value="0"/>
4. Wildlife Habitat <input style="float: right;" type="text" value="0"/>	9. Open Space and Aesthetics <input style="float: right;" type="text" value="0"/>
5. Exemplary Wetland Natural Community <input style="float: right;" type="text" value="0"/>	10. Erosion Control through Binding and Stabilizing the Soil <input style="float: right;" type="text" value="P"/>

Note:

- **When to use this form:** This is a field form to help you compile data needed to evaluate the 10 possible functions and values of a wetland as described in the Vermont Wetland Rules. All information in this form is replicated in the applications for both wetland determinations and wetland permits.
- **Both a desktop review and field examination** should be employed to accurately determine surrounding land use, hydrology, hydroperiod, vegetation, position in the landscape, and physical attributes.
- **The entire wetland or wetland complex** in question must be evaluated to determine the level of function in all ten (10) categories for accurate classification. A wetland complex can be defined as a series of interconnected wetland types.
- **The surrounding upland and outflow area** of the wetland should be examined to determine land use, development, nearby natural resources, and hydrology. The surrounding land use, previous development, and cumulative impacts may play a role in the current function of the wetland. For best results please read all descriptions prior to scoring activity.
- **Evaluation:** The first portion in each section determines whether the wetland does or does not provide the function. If none of the conditions listed in the first section are met, proceed

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to the next section. If any of these conditions are met, determine if the wetland provides this function at a higher or lower level based on the information listed in the subsequent sections.

- **Presumptions:** Please note that many wetlands are already presumed to be significant under the Vermont Wetland Rules. A wetland is presumed to be significant if:
 - The wetland is mapped on the VSWI map
 - The wetland is contiguous to a VSWI mapped wetland
 - The wetland meets the presumptions of significance under Section 4.6
 - The wetland has a preliminary determination that it is Class II

1. Water 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:

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.
- 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.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.

- History of downstream flood damage to public or private property.
- 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.
 - 1. Developed public or private property.
 - 2. Stream banks susceptible to scouring and erosion.
 - 3. Important habitat for aquatic life.
- The wetland is large in size and naturally vegetated.

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- Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.
 - 1. A large amount of impervious surface in urbanized areas.
 - 2. Relatively impervious soils.
 - 3. Steep slopes in the adjacent areas.

2. Surface and Ground Water Protection

Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- Constricted or no outlets.
- Low water velocity through dense, persistent vegetation.
- Hydroperiod permanently flooded or saturated.
- Wetlands in depositional environments with persistent vegetation wider than 20 feet.
- Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
- Presence of seeps or springs.
- Wetland contains a high amount of microtopography that helps slow and filter surface water.
- Position in the landscape indicates the wetland is a headwaters area.
- Wetland is adjacent to surface waters.
- Wetland recharges a drinking water source.
- Water sampling indicates removal of pollutants or nutrients.
- Water sampling indicates retention of sediments or organic matter.
- Fine mineral soils and alkalinity not low.
- 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.

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.

Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.

- Presence of dead forest or shrub areas in sufficient amounts to result in diminished

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nutrient uptake.

- Presence of ditches or channels that confine water and restrict contact of water with vegetation.
- 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.
- Current use in the wetland results in disturbance that compromises this function.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The wetland is adjacent to a well head or source protection area, and provides ground water recharge.
 - The wetland provides flows to Class A surface waters.
 - The wetland contributes to the protection or improvement of water quality of any impaired waters.
 - The wetland is large in size and naturally vegetated.

3. Fish Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.
 - 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.
 - Documented or professionally judged spawning habitat for northern pike.
 - Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.
 - 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.

4. Wildlife Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.
 - 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 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.

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- 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.

- 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

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developed areas (vernal pools and seeps are generally small in size, so this does not apply).

- 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.
- The current use in the wetland results in frequent cutting, mowing or other disturbance.
- The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The wetland complex is large in size and high in quality.
 - The habitat has the potential to support several species based on the assessment above.
 - Wetland is associated with an important wildlife corridor.
 - The wetland has been identified by ANR-F&W as important habitat.

5. Exemplary Wetland Natural Community

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.

The wetland is also likely to be significant if any of the following conditions are met:

- 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.
- Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:
 - Deep peat accumulation reflecting a long history of wetland formation;
 - Forested wetlands displaying very old trees and other old growth characteristics;
 - A wetland natural community that is at the edge of the normal range for that type;

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- A wetland mosaic containing examples of several to many wetland community types; or
- A large wetland complex with examples of several wetland community types.

6. Rare, Threatened, and Endangered Species Habitat

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - 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.

The wetland is also likely to be significant if any of the following apply:

 - There is credible documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;
 - There is credible documentation that threatened or endangered species have been present in past 10 years;
 - 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;
 - There is credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

List name of species and ranking:

7. Education and Research in Natural Sciences

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
 - Owned by or leased to a public entity dedicated to education or research.
 - History of use for education or research.
 - Has one or more characteristics making it valuable for education or research.

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8. Recreational Value and Economic Benefits

- Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.
 - Used for, or contributes to, recreational activities.
 - Provides economic benefits.
 - Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.
 - Used for harvesting of wild foods.

Comments:

9. Open Space and Aesthetics

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - Can be readily observed by the public; and
 - Possesses special or unique aesthetic qualities; or
 - Has prominence as a distinct feature in the surrounding landscape;
 - Has been identified as important open space in a municipal, regional or state plan.

10. Erosion Control through Binding and Stabilizing the Soil

- Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.
 - Erosive forces such as wave or current energy are present and any of the following are present as well:
 - Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.
 - Good interspersion of persistent emergent vegetation and water along course of water flow.
 - Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.

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What type of erosive forces are present?

- Lake fetch and waves
- High current velocities
- Water level influenced by upstream impoundment

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.

- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.
 - The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.
- Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.
 - The stream contains high sinuosity.
 - Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.



Appendix F

Natural Resource Agency Correspondence



Martha, thank you for providing the site plans for the proposed development at 101 and 347 John Seitz Drive. As you know there is a record of a rare plant, Orange-Grass St. John'S-Wort (*Hypericum gentianoides*) in the vicinity. Having looked at your plans as well as recent aerial photos, it appears that there is little habitat for the Orange grass on your site. It is a plant of open fields and recently disturbed sandy banks. Coincidentally, I searched for the Orange grass last year in the field below the Brattleboro High School where it had been most recently observed. At that time I was unable to locate any plants.

So I have no concerns for impacts to Rare, Threatened or Endangered plants with your development as proposed.

Thank you for contacting our program.

Bob

Bob Popp
Department Botanist
VT. Dept of Fish and Wildlife
Natural Heritage Inventory
(802) 476-0127



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland

Consultation Code: 05E1NE00-2016-SLI-0193

November 02, 2015

Event Code: 05E1NE00-2016-E-00254

Project Name: GS Precision Expansion Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: GS Precision Expansion Project

Official Species List

Provided by:

New England Ecological Services Field Office

70 COMMERCIAL STREET, SUITE 300

CONCORD, NH 03301

(603) 223-2541

<http://www.fws.gov/newengland>

Consultation Code: 05E1NE00-2016-SLI-0193

Event Code: 05E1NE00-2016-E-00254

Project Type: DEVELOPMENT

Project Name: GS Precision Expansion Project

Project Description: This project consists of additions to two manufacturing buildings and expanding parking to the west of these buildings at 101 John Seitz Drive in the Exit One Industrial Park in Brattleboro, VT.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: GS Precision Expansion Project

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-72.56723999977112 42.830211598577186, -72.56641387939453 42.83045551299586, -72.56542682647705 42.830542063042095, -72.56543755531311 42.831140041868274, -72.56557703018188 42.83143116104499, -72.56600618362425 42.83184816720655, -72.5682270526886 42.832650699448635, -72.56926774978638 42.83154918194223, -72.5681734085083 42.83080958060054, -72.56789445877075 42.83044764480385, -72.56758332252502 42.83021946679926, -72.56736874580383 42.83018799390495, -72.56723999977112 42.830211598577186)))

Project Counties: Windham, VT



United States Department of Interior
Fish and Wildlife Service

Project name: GS Precision Expansion Project

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: GS Precision Expansion Project

Critical habitats that lie within your project area

There are no critical habitats within your project area.