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

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| **Applicant Name: Vermont Agency of Transportation** | **Representative Name: DuBois & King, Inc., c/o Charlotte Brodie** |
| **Town where project is located: Ferrisburgh** | **County: Addison** |

**Project Location Description: The wetland is immediately adjacent to the VT Railway line in the Town of Ferrisburgh, south of Monkton Road and west of South Middlebrook Road, as shown on the attached NRA location map.**
*911 Street Address or direction from nearest intersection*

**Project Summary:The project includes the installation of a new culvert using jacking techniques, grouting of 60' of existing damaged culvert, installation of headwalls and wingwalls and placing of stone fill.**

**Permit Type Requested** (check all that apply)
☐ Vermont General Permit Coverage ☐ Wetland Determination ☒ Vermont Wetland Permit

**Impact Calculations:** Total up proposed impacts from wetland tables listed below

| | | | |
|---|---|---|---|
| Total Wetland Impact | 684square feet (s.f.) | Total Buffer Zone Impact | 3,517square feet (s.f.) |
| Total Wetland Clearing (qualified linear projects only) | 0square feet (s.f.) | Total Buffer Zone Clearing (qualified linear projects only) | 0square feet (s.f.) |

**Permit Fees: Make check payable to - *State of Vermont***

| | | | |
|---|---|---|---|
| Wetland Impact Fee: ($0.75/sf) | $513.00 | Administrative Fee: | $240 |
| Buffer Impact Fee: ($0.25/sf) | $879.25 | Total Check Amount: | $1,632.25 |
| Clearing Fee: ($0.25/sf) | $0.00 | | |

**Existing Land Use Type:** (check all that apply)
☐ Forestry ☐ Residential (Subdivision) ☐ Industrial/ commercial
☒ Agriculture ☒ Transportation ☐ Parks/Rec/Trail ☐ Residential (Single Family) ☐ Institutional ☒ Undeveloped

**Proposed Land Use Type:** (check all that apply)
☐ Forestry ☐ Residential (Subdivision) ☐ Industrial/ commercial
☐ Agriculture ☐ Transportation ☐ Parks/Rec/Trail ☐ Residential (Single Family) ☐ Institutional ☒ No Change

**Proposed Impact Type:** (check all that apply)
☐ Buildings ☐ Utilities ☐ Parking ☐ Septic/Well ☐ Stormwater
☐ Driveway ☐ Road ☐ Parks/Path ☐ Agriculture ☐ Pond ☐ Lawn
☐ Dry Hydrant ☐ Beaver dam alteration ☐ Silviculture ☐ Aesthetics ☒ Other ☐ No Impact

**Wetland 1: A** (Label using Wetland ID from application if applicable, use supplemental sheets if more than one wetland is being impacted) Location: **Culvert 99.10**

Wetland Type: **PEM - Emergent Wetla** WL Size Class : **1-5 acres**

**Proposed Alterations**

| **Wetland Alteration:** | | **Buffer Zone Alteration:** | | **Wetland Alteration Type** (check all that apply) | |
|---|---|---|---|---|---|
| Wetland Fill: | 40s.f. | | | ☐Dredge | ☐Drain |
| Temporary: | 644s.f. | Temporary: | 3459 s.f | ☐Cut Vegetation | ☐Stormwater |
| Permanent: : | 0s.f. | Permanent: : | 58 s.f | ☒Trench/Fill | ☐Other |

**Mitigation**

**Avoidance and Minimization** (s.f. of wetland NOT impacted): Wetland: 0s.f. Buffer Zone 0s.f.

| **Wetland Mitigation: (s.f. Gained)** | | | | **Buffer Zone Mitigation (s.f. Gained):** | | | |
|---|---|---|---|---|---|---|---|
| Restoration | 0s.f. | Enhancement | 0s.f. | Restoration | 0 s.f. | Enhancement | 0s.f |

# 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 | VT Agency of Transportation (c/o Glenn Gingras) | |
| 1.2. Applicant Address | One National Life Drive, Montpelier, VT 05633 | |
| 1.3. Applicant Phone Number | 802-279-0583 | |
| 1.4. Applicant Email | glenn.gingras@vermont.gov | |
| 1.5. Applicant Signature (original signature required) | By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.<br>x Glenn Gingras Date: 11/16/15 | |
| 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 | DuBois & King, Inc. | |
| 2.2. Representative Address | 6 Green Tree Drive, South Burlington, VT 05403 | |
| 2.3. Representative Phone Number | 802-728-7202 | |
| 2.4. Applicant Email | cbrodie@dubois-king.com | |
| 2.5. Representative Signature (original signature required) | By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.<br>x Charlotte Brodie Date: 11/13/15 | |
| 3. Landowner | Landowner must sign the application. Use this space if landowner is different from the applicant | |
| 3.1. Landowner Name | Most of the work will be completed within the State of Vermont Right-of-Way. There will be some minor work completed outside that ROW which will require temporary construction easements to be obtained by the State of Vermont. | |
| 3.2. Landowner Address | One National Life Drive | |
| 3.3. Landowner Phone Number | (802) 279-0583 | |
| 3.4. Landowner Email | glenn.gingras@vermont.gov (representative) | |
| 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.<br>All landowner easements to be obtained will state that the State of Vermont and Vermont Railway (lessee) will be responsible for all conditions of the State Wetlands Permit. | |
| 3.6. Landowner Signature (original signature required) | By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge.<br>x Glenn Gingras Date: 11/16/15 | |
| 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. | |

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| | The wetland is immediately adjacent to the VT Railway line in the Town of Ferrisburgh, south of Monkton Road and west of South Middlebrook Road, as shown on the attached NRA location map. | | |
| 5. Site Visit Date and Attendees | Date of visit with District Wetlands Ecologist | List people present for site visits including Ecologist, landowner, and representatives. | |
| | April 2015 | Julie Foley (District Ecologist) and Charlotte Brodie (D&K Biologist) | |
| 6. Wetland Classification | The wetland is a Class II wetland because (Choose one): | | |
| | The wetland meets the presumption of significance | | |
| 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 | Can be obtained from the Environmental Interest Locator Map for mapped wetlands | | |
| | 2-5 ac. | | |
| 7.2. Natural Community Types Present | 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 | | |
| | 90% emergent, 5% forested, 5% scrub | | |
| 7.3. Landscape Position | Where is the wetland located on the landscape? Examples: bottom of a basin, edge of a stream, shore of a lake, etc. | | |
| | Hillslope, Champlain Valley | | |
| 7.4. Wetland Hydrology | Describe the main source of wetland hydrology for the wetland complex. List any river, streams, lakes and ponds. | | |
| | High groundwater table and minor overflow of unnamed tributary to Mud Creek.<br>Include answers to the following where appropriate: | | |
| 7.4.1. Direction of flow | For example: stream flows from north to south through the wetland complex. | | |
| | Northerly | | |
| 7.4.2. Influence of hydrology on wetland complex | For example: The river provides flood water to the wetland in the spring. | | |
| | The wetland is primarily supported by a high groundwater table, with some overbank flows from the tributary to Mud Creek during spring highwater and large rainfall events. | | |
| 7.4.3. Relation to the project area | Distance between the project area and any nearby surface waters. | | |
| | Stream flows through wetland. | | |
| 7.4.4. Hydroperiod | Discuss frequency and duration of flooding, ponding, and/or soil saturation. | | |
| | Soil saturation is prolonged, flooding is likely to be of fairly short duration during spring highwater and high rainfall events. | | |
| 7.5. Surrounding Landuse of the Wetland Complex | For example: rural residential and forested; agricultural and undeveloped, | | |
| | Agricultural and undeveloped. | | |
| 7.6. Relation to Other Nearby Wetlands | Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question. | | |
| | N/A | | |
| 7.7. Pre-project Cumulative Impacts to the Wetland | 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. | | |
| | Agricultural operations, rail line. | | |
| 8. Description of Subject Wetland | 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 | | |

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| | 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. | |
| 8.1. Context of Subject Wetland | Describe where the subject wetland is in the context of the larger wetland or wetland complex described above.<br>The subject wetland is at the upper end of the larger wetland complex. | |
| 8.2. Wetland Landuse | For example: mowed lawn; old field; naturally vegetated. Describe any previous and ongoing disturbance in the subject wetland.<br>Old field, undergoing succession. | |
| 8.3. Wetland Vegetation | List dominant wetland community type and associated dominant plant species.<br>The dominant vegetation includes reed canary grass and sedges,with a minor component of greystem dogwood and elm. | |
| 8.4. Wetland Soils | Use USDA NRCS information where possible and use the ACOE Delineation Manual soil description<br>Vergennes Clay. Soil investigations showed presence of silty loams. Depleted below dark surface (A11). | |
| 8.5. Wetland Hydrology | Use descriptions from the ACOE Delineation Manual.<br>Saturation (A3) | |
| 8.6. Buffer Zone | Describe the buffer zone of the subject wetland including: | |
| 8.6.1. General landuse | For example: mowed road shoulder; forested; old field; paved road and residential lawns etc. Describe any previous and ongoing disturbance in the buffer zone.<br>Old field, agricultural. | |
| 8.6.2. Buffer vegetation | List community type and dominant plant species<br>Agricultural grasses, e.g., timothy, bluegrass | |
| 8.6.3. Buffer soils | Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description<br>Vergennes clay. Soil investigations indicated presence of non-hydric soils. | |

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| 9. **Wetland Determination** | If the application involves a wetland determination please answer the following. **If not, skip to Section 10.** | |
| 9.1. Reason for Petition | Please choose one from the dropdown menu:<br><br>Add a Section 4.6 presumed wetland to the VSWI map | |
| 9.2. Previous Decisions | Please list all determinations and decisions, if any, issued by the Secretary, Panel or former Water Resources Board, pertaining to the wetland or buffer at issue: | |
| 9.3. Narrative | Please provide any narrative to support the petition for a wetland determination here. This section is not required for petitions to add a Section 4.6 presumed wetland to the VSWI map, but is required for all other petitions. | |
| **If the application is only for a Wetland Determination only, skip to Section 13** | | |

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| 10. Project Description | | |
| 10.1. Overall Project | Description of the project. For example: six-lot residential subdivision; expansion of an existing commercial building, access drive to a single family residence.<br>The project includes the installation of a new culvert using jacking techniques, grouting of 60' of existing damaged culvert, installation of headwalls and wingwalls and placing of stone fill. | |

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| 10.2. Project Purpose | For example: To construct a residential subdivision, upgrade existing road to improve access, extend a trail system<br>A large volume of water and an inadequately sized hydraulic opening, combined with surface water run-off, appears to have caused the soil directly above the outlet of the culvert to wash out. The proposed project will replace the damaged culvert with a new one sized according to modern hydraulic standards, and will stabilize the surrounding area of the railroad tracks. | |
| 10.3. Acres Owned by Applicant | Acreage of subject property.<br>The applicant owns the entire rail line and associated ROW. | |
| 10.4. Acres Involved in the Project | Acreage of area involved in the project.<br>Less than one acre. | |
| 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.<br>Permanent impacts to wetland will be limited to 40 SF of stone fill at the culvert inlet. Temporary wetland impacts are associated with staging of equipment and materials. Permanent impact to buffer will be limited to 58 SF of of stone fill at the culvert outlet. Temporary impact to buffer is associated with staging of equipment and materials. | |
| 11.2. Dimension Details | Square footage of buildings, dimension of roads including fill footprint.<br>Staging areas of 40' X 60' are provided on either end of the culvert. | |
| 11.3. Bridges and Culverts | Culvert circumference, length, placement and shapes, or bridge details.<br>Existing 4'X4' concrete pipe to be replaced with 48' long, 4'6" inside diameter steel jacked casing with 5/8" thick cement mortar lining. | |
| 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<br>Drainage water that is present will continue to flow through the existing pipe during construction. During the jacking operation, the area will be isolated and a staging area will be temporarily installed (likely filter fabric and clean stone fill) to allow equipment access. The new pipe will be jacked underneath the rail line, then cement grouted, followed by construction of wingwalls and placement of stone fill. The water will then be re-routed into the new culvert following curing of the cement. The old pipe will be filled with grout and left in place. | |
| 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.<br>Appropriate erosion and sediment control features will be in place according to the low risk handbook. Features will include silt fence and project demarcation fence to isolate the work area. | |
| 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.<br>None. | |
| 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.<br>**Totals**<br>Wetland Fill: 40 s.f.<br>Temporary Wetland Impact: 644 s.f.<br>Other Permanent Wetland Impact: 0 s.f. | |

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| | Describe in detail the proposed impact.<br>The permanent impact is associated with stone fill at the inlet of the culvert. The temporary impact is associated with staging of materials and equipment. | |
| 12.2. Buffer Zone 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.<br>**Totals**<br>Temporary Buffer Impact: 3459 s.f.<br>Permanent Buffer Impact: 58 s.f.<br>Describe in detail the proposed impact.<br>The permanent impact is associated with stone fill at the culvert outlet. The temporary impact is associated with the staging of equipment and materials. | |
| 12.3. Cumulative Impacts | List any potential cumulative or ongoing, direct and indirect impacts on the functions of the wetland that could result from the proposed project.<br>None | |
| 12.4. Avoidance and Minimization | Please refer to Section 9.5b of the rules on Mitigation Sequencing for this section. | |
| 12.4.1. Avoidance | Can the proposed activity be practicably located outside the wetland/buffer zone, or on another site owned or controlled by the applicant or reasonably available to satisfy the basic project purpose? If not, indicate why. This answer should include any examination of alternatives that you have explored including using other properties, requesting easements, and altering the project design.<br>This project involves the replacement of an existing culvert, and so impacts cannot be completely avoided. | |
| 12.4.2. Minimization | 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<br>Minimization efforts include: Construction of a new culvert sized according to modern hydraulic standards; use of best management practices for erosion and sediment control; use of VTrans Standard Specifications for Construction; prompt removal of temporary fills and re-establishment of vegetation in disturbed areas. All equipment will be visually inspected and cleaned of soils prior to entering wetlands and buffers. | |
| 12.4.3. Mitigation | 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.<br>All areas that are to be temporarily disturbed will be restored to original grade and seeded and mulched. | |
| 12.4.4. Compensation | 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. | |

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| | No compensation is proposed. | |
| 13. Supporting materials | Where appropriate list the accompanying material by title, author, date and last revision date. Submit these documents and plans with the application. | |
| 13.1. Location map | 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.<br>See attached. | |
| 13.2. Site Plans | 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.<br>"Ferrisburgh Culvert 99.10, Wetland Impact Sheet," designed by P. Bero, dated 11/13/15. | |
| 13.3. ACOE Delineation Forms | List by author, location, and date. Required only for Individual Permits.<br>Charlotte Brodie, Vermont Railway Culvert 99.10, 4/15/13. | |
| 13.4. Other Supporting Documents | Provide any other documentation that supports the application. List photographs; easements; agreements; may include a GIS-compatible wetland submittal for determinations; etc.<br>Photos attached. | |
| 13.5. List of Abutters (Neighbors with land adjoining wetland or buffer zone) | Attach list of names and mailing addresses or submit as word mailing document.<br>1) Francis X. Moloughney<br>135 Windy Lane<br>Vergennes, VT 05491<br><br>2) Peter and C. Elizabeth Markowski<br>462 Monkton Road<br>Vergennes, VT 05491 | |
| 13.5.1. Newspaper Notification | 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.** | |
| 14. Check Which Functions are Present in the Subject Wetland and in the Wetland Complex. | **Wetland Function Summary:** (if more than one wetland use supplemental wetland sheets) | |

| Functions & Values | Subject Wetland | Wetland Complex | Functions & Values | Subject Wetland | Wetland Complex |
|---|---|---|---|---|---|
| Flood/Storm Storage | ☒ | ☒ | RTE Species | ☐ | ☐ |
| Surface & Groundwater Protection | ☒ | ☒ | Education & Research | ☐ | ☐ |
| Fish Habitat | ☐ | ☐ | Recreation/ Economic | ☐ | ☐ |
| Wildlife Habitat | ☐ | ☒ | Open Space/ Aesthetics | ☐ | ☐ |
| Exemplary Natural Community | ☐ | ☐ | Erosion Control | ☒ | ☒ |

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| 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.** | |

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| | **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:<br>☐The activity qualifies as an eligible activity for coverage under the Vermont General Wetland Permit<br>☐The proposed project will meet the conditions applicable to the proposed project in the Vermont Wetland General Permit<br>☐The activity does not qualify as an Allowed Use under Section 6 of the Vermont Wetland Rules.<br>☐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.<br>☐ All impacts have been avoided and minimized to the greatest extent possible.<br>☐The wetland complex is not significant for Function 5.5 Exemplary Wetland Natural Community or 5.6 Rare, Threatened and Endangered Species Habitat.<br>☐The activity is not located in or adjacent to a vernal pool, fen, or bog.<br>☐The wetland is not at or above 2,500' in elevation (headwaters wetland).<br>☐The project is not located in a Class I wetland or associated buffer zone.<br>☐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** | | |

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| **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.<br><br>If more than one wetland complex is involved, use the Supplemental Wetland Forms. | |
| 16. Storage for Flood Water and Storm Runoff | ☒ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.<br>☒ Constricted outlet or no outlet and an unconstricted inlet.<br>☒ Physical space for floodwater expansion and dense, persistent, emergent vegetation or dense woody vegetation that slows down flood waters or stormwater runoff during peak flows and facilitates water removal by evaporation and | |

transpiration.

- ☐ If a stream is present, its course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.
- ☐ Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.
- ☐ Hydrologic or hydraulic study indicates wetland attenuates flooding.

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

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

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

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| | ☐ 2. Relatively impervious soils.<br>☐ 3. Steep slopes in the adjacent areas. | |
| 16.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above<br>The outlet is currently quite restricted, being an undersized culvert. Floodwaters can spread out into dense herbaceous vegetation. | |
| 16.2. 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.<br>The permanent impact to wetland and buffer totals only 98 SF. The project will replace an undersized culvert which was damaged by floodwaters. The larger, new culvert should be able to pass floodwaters without causing undue erosion as currently occurs. Floodwaters will continue to have the opportunity to spread out into dense, herbaceous vegetation. | |
| 17. 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.<br>☒ Constricted or no outlets.<br>☒ Low water velocity through dense, persistent vegetation.<br>☐ Hydroperiod permanently flooded or saturated.<br>☐ Wetlands in depositional environments with persistent vegetation wider than 20 feet.<br>☐ Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.<br>☐ Presence of seeps or springs.<br>☐ Wetland contains a high amount of microtopography that helps slow and filter surface water.<br>☒ Position in the landscape indicates the wetland is a headwaters area.<br>☒ Wetland is adjacent to surface waters.<br>☐ Wetland recharges a drinking water source.<br>☐ Water sampling indicates removal of pollutants or nutrients.<br>☐ Water sampling indicates retention of sediments or organic matter.<br>☒ Fine mineral soils and alkalinity not low.<br>☐ 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.<br>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 | |

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| | moderate level.<br>☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.<br>☐ Presence of dead forest or shrub areas in sufficient amounts to result in diminished nutrient uptake.<br>☐ Presence of ditches or channels that confine water and restrict contact of water with vegetation.<br>☐ 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.<br>☐ Current use in the wetland results in disturbance that compromises this function.<br>☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.<br>☐ The wetland is adjacent to a well head or source protection area, and provides ground water recharge.<br>☐ The wetland provides flows to Class A surface waters.<br>☐ The wetland contributes to the protection or improvement of water quality of any impaired waters.<br>☐ The wetland is large in size and naturally vegetated. | |
| 17.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above<br>The current outlet is constricted, and floodwaters can spread out into dense herbaceous vegetation. | |
| 17.2. 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.<br>The proposed culvert will be much less restricted, which should help to prevent erosion and sedimentation into surface waters. Floodwaters will continue to have the opportunity to spread out into dense, herbaceous vegetation. | |
| 18. Fish Habitat | ☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.<br>☐ 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.<br>☐ 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.<br>☐ Documented or professionally judged spawning habitat for northern pike.<br>☐ Provides cold spring discharge that lowers the temperature | |

| | | |
|---|---|---|
| | of receiving waters and creates summer habitat for salmonoid species.<br>☐ 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. | |
| 18.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above | |
| 18.2. 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. | |
| 19. Wildlife Habitat | ☒ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.<br>☐ 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.<br>☐ 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.<br>☒ 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.<br>☐ 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.<br>☐ 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.<br>☐ 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.<br>☐ Has the habitat to support muskrat, otter or mink. Good habitats for these species include deep marshes, wetlands adjacent to bodies of water including lakes, ponds, rivers | |

and streams.

☐ Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an adult beaver population.

☐ Provides the following habitats that support the reproduction of Uncommon Vermont amphibian species including:

☐ 1. Wood Frog, Jefferson Salamander, Blue-spotted Salamander, or Spotted Salamander. Breeding habitat for these species includes vernal pools and small ponds.

☐ 2. Northern Dusky Salamander and the Spring Salamander. Habitat for these species includes headwater seeps, springs, and streams.

☐ 3. The Four-toed salamander; Fowler's Toad; Western or Boreal Chorus frog, or other amphibians found in Vermont of similar significance.

☐ Supports or has the habitat to support significant populations of Vermont amphibian species including, but not limited to Pickerel Frog, Northern Leopard Frog, Mink Frog, and others found in Vermont of similar significance. Good habitat for these types of species includes large marsh systems with open water components.

☐ Supports or has the habitat to support populations of uncommon Vermont reptile species including: Wood Turtle, Northern Map Turtle, Eastern Musk Turtle, Spotted Turtle, Spiny Softshell, Eastern Ribbonsnake, Northern Watersnake, and others found in Vermont of similar significance.

☒ Supports or has the habitat to support significant populations of Vermont reptile species, including Smooth Greensnake, DeKay's Brownsnake, or other more common wetland-associated species.

☐ Meets four or more of the following conditions indicative of wildlife habitat diversity:

☐ 1. Three or more wetland vegetation classes (greater than 1/2 acre) present including but not limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog;

☐ 2. The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp;

☒ 3. Located adjacent to a lake, pond, river or stream;

☒ 4. Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land;

☐ 5. Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water;

| | | |
|---|---|---|
| | ☐ 6. One of the following:<br>☐ i. hydrologically connected to other wetlands of different dominant classes or open water within 1 mile;<br>☐ ii. hydrologically connected to other wetlands of same dominant class within 1/2 mile;<br>☐ iii. within 1/4 mile of other wetlands of different dominant classes or open water, but not hydrologically connected;<br>☐ Wetland or wetland complex is owned in whole or in part by state or federal government and managed for wildlife and habitat conservation; and<br>☐ Contains evidence that it is used by wetland dependent wildlife species.<br>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.<br>☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.<br>☐ 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).<br>☐ 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.<br>☐ The current use in the wetland results in frequent cutting, mowing or other disturbance.<br>☐ The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.<br>☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.<br>☐ The wetland complex is large in size and high in quality.<br>☐ The habitat has the potential to support several species based on the assessment above.<br>☐ Wetland is associated with an important wildlife corridor.<br>☐ 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<br>The wetland complex provides minor wildlife habitat, in terms of feeding habitat for great blue herons and habitat for greensnakes and DeKay's Browsnakes. The subject wetland's wildlife habitat is less valuable than the remaining wetland's habitat due to its proximity to an active rail line. | |

| | | |
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| 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.<br>The permanent impacts to wetland and buffer are small, 98 SF total. The proposed larger culvert will provide more opportunity for aquatic organism passage. | |
| 20. 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.<br>☐ 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.<br>The wetland is also likely to be significant if any of the following conditions are met:<br>☐ 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.<br>☐ Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:<br>☐ Deep peat accumulation reflecting a long history of wetland formation;<br>☐ Forested wetlands displaying very old trees and other old growth characteristics;<br>☐ A wetland natural community that is at the edge of the normal range for that type;<br>☐ A wetland mosaic containing examples of several to many wetland community types; or<br>☐ A large wetland complex containing examples of several wetland community types.<br>List species or communities of concern:<br>None. | |
| 20.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above<br>N/A | |
| 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.<br>N/A | |
| 21. Rare, Threatened, and Endangered Species Habitat | ☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the | |

| | | |
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| | wetland provides this function.<br>☐ 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.<br>The wetland is also likely to be significant if any of the following apply:<br>☐ There is creditable documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;<br>☐ There is creditable documentation that threatened or endangered species have been present in past 10 years;<br>☐ There is creditable 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;<br>☐ There is creditable documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).<br>List name of species and ranking:<br>The Town of Ferrisburgh is mapped as Indiana bat summer range. Correspondence with the USFWS indicates that trees to be cut for the project should be cut outside of the USFWS Time of Year restriction period of April 15 through October 31 for both Indiana bat and northern long-eared bat (see attached July 30, 2015 email from Susi VonOettingen). | |
| 21.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above<br>N/A | |
| 21.2. Statement of no adverse impact | Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function.<br>N/A | |
| 22. 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.<br>☐ Owned by or leased to a public entity dedicated to education or research.<br>☐ History of use for education or research.<br>☐ Has one or more characteristics making it valuable for education or research. | |
| 22.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above | |
| 22.2. Statement of no undue adverse impact | Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function. | |

| | | |
|---|---|---|
| | | |
| 23. Recreational Value and Economic Benefits | ☐ Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.<br>☐ Used for, or contributes to, recreational activities.<br>☐ Provides economic benefits.<br>☐ Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.<br>☐ Used for harvesting of wild foods.<br>Comments: | |
| 23.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above | |
| 23.2. Statement of no undue adverse impact | Please explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance and minimization measures relevant to this function. | |
| 24. 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.<br>☐ Can be readily observed by the public; and<br>☐ Possesses special or unique aesthetic qualities; or<br>☐ Has prominence as a distinct feature in the surrounding landscape;<br>☐ Has been identified as important open space in a municipal, regional or state plan.<br>Comments: | |
| 24.1. Subject Wetland | Please explain how the subject wetland contributes to the function listed above | |
| 24.2. 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. | |
| 25. 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.<br>☒ Erosive forces such as wave or current energy are present and any of the following are present as well:<br>☒ Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.<br>☒ Good interspersion of persistent emergent vegetation | |

| | | |
|---|---|---|
| | and water along course of water flow.<br>☒ Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.<br><br>What type of erosive forces are present:<br><br>☐ Lake fetch and waves<br>☒ High current velocities:<br>☐ Water level influenced by upstream impoundment<br><br>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.<br><br>☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.<br><br>☐ The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.<br><br>☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.<br><br>☐ The stream contains high sinuosity.<br><br>☐ Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor. | |
| 25.1.Subject Wetland | Please explain how the subject wetland contributes to the function listed above<br>The dense herbaceous vegetation along the length of the stream anchors the soil and minimizes the potential for erosion. | |
| 25.2.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.<br>The new, larger culvert will not concentrate the flow of water as severely as the existing culvert, and therefore, the erosive forces of the stream should diminish. The permanent impacts to wetland and buffer are minimal (98 SF total). Flood flows will continue to have access to the dense, herbaceous vegetation along the riparian corridor, which will continue to slow the water and diminish erosive forces. | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Creation | 0s.f. | Conservation | 0s.f.. | Creation | 0s.f | Conservation | 0s.f |
| **Reason for Mitigation:** | | ☐ Correction of Violation | | ☐ Mitigation to offset permit impacts | | ☐ Voluntary | |

**All Applications Should be Mailed To:**

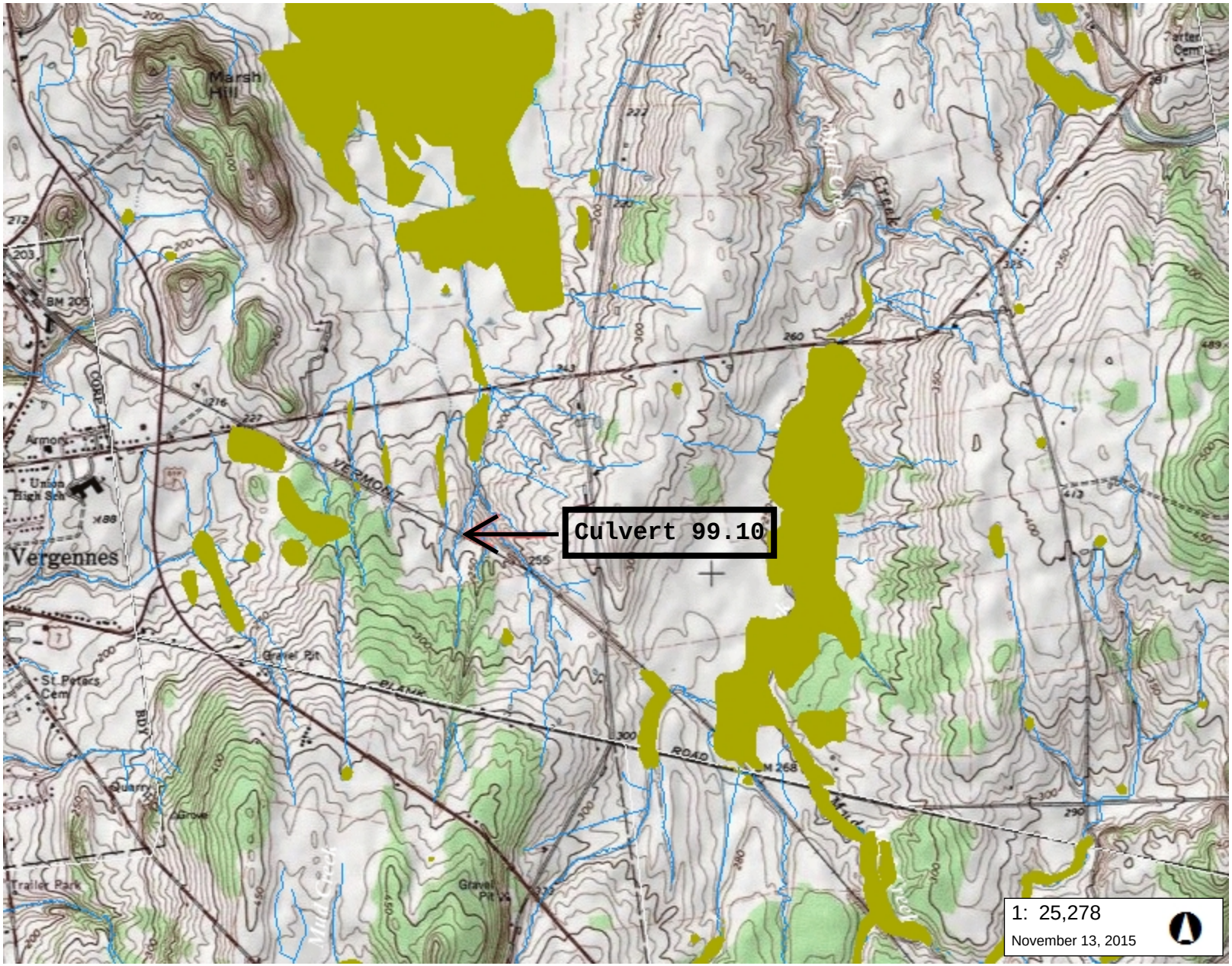
**Vermont Wetlands Program**
**Watershed Management Division**
**One National Life Drive, Main 2**
**Montpelier, VT 05620-3522**

| 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 |

# Natural Resources Atlas

Vermont Agency of Natural Resources

**vermont.gov**


## LEGEND

Wetlands - VSWI

- Class 1 Wetland
- Class 2 Wetland

Stream

Town Boundary

## NOTES

Map created using ANR's Natural Resources Atlas

1,284.0 0 642.00 1,284.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 2106 Ft. 1cm = 253 Meters

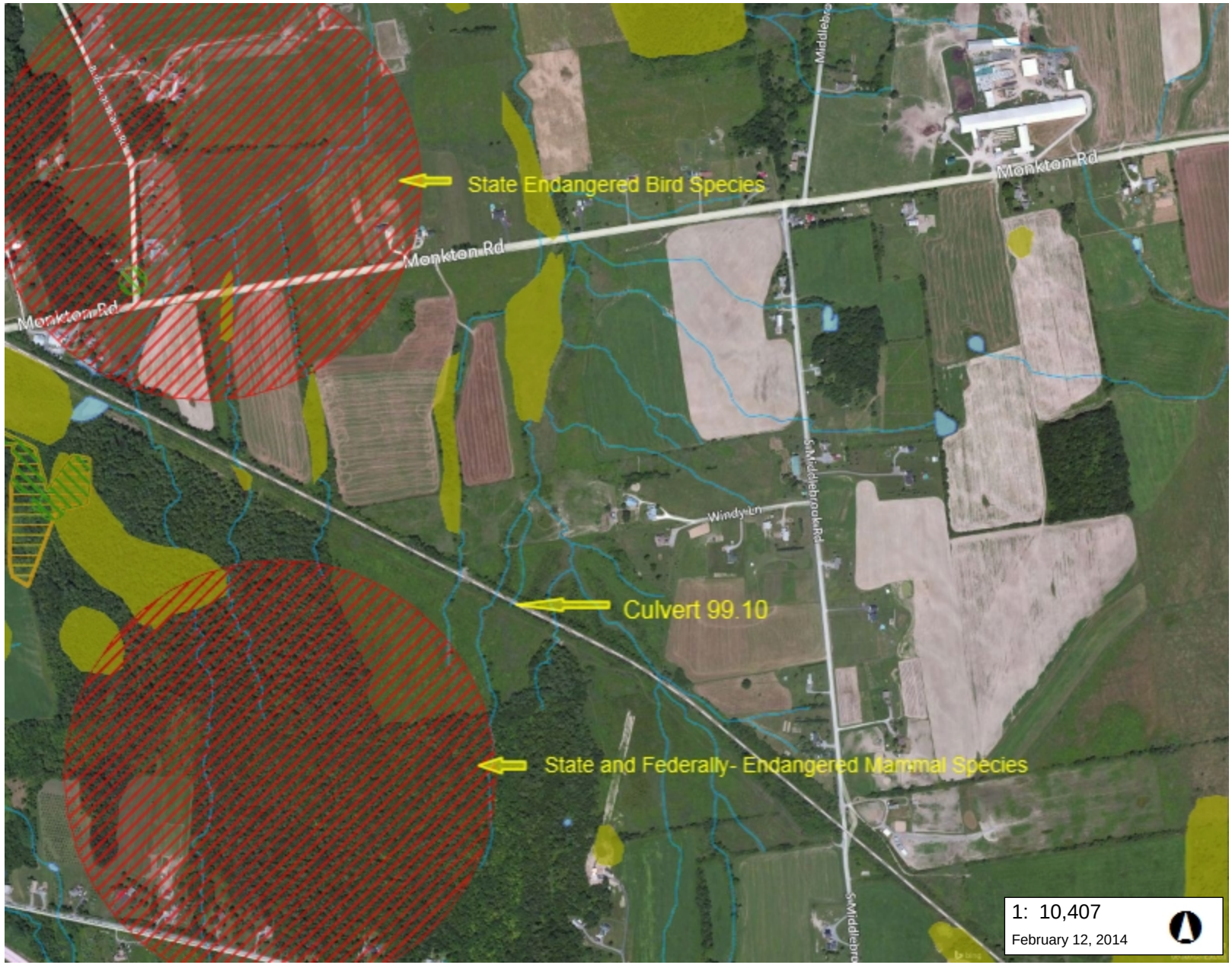


THIS MAP IS NOT TO BE USED FOR NAVIGATION

# Natural Resources Atlas

Vermont Agency of Natural Resources

**vermont.gov**





## LEGEND

Rare Threatened Endangered
- Threatened or Endangered
- Rare

Significant Natural Community

Uncommon Species and Other
- Animal
- Plant
- Natural Community

Deer Wintering Areas

AE/VCE Confirmed Vernal Poo

AE/VCE Unconfirmed Vernal F

Wetlands - VSWI
- Class 1 Wetland
- Class 2 Wetland

Waterbody

Stream

Town Boundary

## NOTES

Map created using ANR's Natural Resources Atlas
RTE, Natural Communities and Wetlands

529.0 0 264.00 529.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 867 Ft. 1cm = 104 Meters



THIS MAP IS NOT TO BE USED FOR NAVIGATION

PERMANENT CLASS II WETLANDS IMPACT = 40 SF

TEMPORARY CLASS II WETLANDS IMPACT = 644 SF

PERMANENT CLASS II BUFFER IMPACT = 58 SF

TEMPORARY CLASS II BUFFER IMPACT = 3459 SF

FLOW
UNNAMED

3459 SF TOTAL TEMPORARY IMPACT
TO CLASS II WETLAND BUFFER

50' WETLAND BUFFER
(TYP.)

644 SF TOTAL TEMPORARY
CLASS II WETLANDS IMPACT

AER E&T

O.H.W. ELEV. 233.3'

40 SF TOTAL PERMANENT
CLASS II WETLANDS IMPACT

EXISTING APPROX. 4' WIDE x 4'
HIGH CULVERT, TO BE FILLED IN

4'-6" INSIDE DIAMETER STEEL JACKED
CASING WITH 5/8" THICK CEMENT MORTAR
LINING (CML) INSTALLED USING PIPE
JACKING TECHNIQUES

5233+00 5234+00 5235+00 5236+00 5237+00 5238+00 5239+00

58 SF TOTAL PERMANENT
CLASS II BUFFER IMPACT

40' x 60' CONSTRUCTION
STAGING AREA (TYP.)

P L

CLASS II WETLAND
BOUNDARY (TYP.)

VT STATE PLANE GRID

N

LEGEND

EROSION MATTING

STONE FILL TYPE II

CUT / FILL LINES

WOVEN WIRE SILT FENCE

WETLAND IMPACTS

SCALE IN FEET

20 0 20

| | |
|---|---|
| PROJECT NAME: FERRISBURGH CULVERT 99.10 | |
| PROJECT NUMBER: RREWOOID | |
| FILE NAME: ...\z130526erobdrpermitsvanr.dgn | PLOT DATE: 11/13/2015 |
| PROJECT LEADER: J. TUCKER | DRAWN BY: E. OHANIAN |
| DESIGNED BY: P. BERO | CHECKED BY: E. DETRICK |
| WETLAND IMPACT SHEET | SHEET 1 OF 1 |

\\archimedes\projects\620040FC VTrans Rail\VTR\DESIGN\CADD FILES\99.10 CADD FILES\z130526erobdrpermitsvanr.dgn

11/13/2015

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Vermont Railway, Culvert 99.10 City/County: Ferrisburgh/Addison Sampling Date: 4/15/13

Applicant/Owner: VTrans State: VT Sampling Point: A1

Investigator(s): Charlotte Brodie Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 4 Lat: 44.1611 Long: -73.22160 Datum: _____

Soil Map Unit Name: _____ NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No _____ |
| Hydric Soil Present? | Yes X | No _____ |
| Wetland Hydrology Present? | Yes X | No _____ |

**Is the Sampled Area within a Wetland?** Yes X No _____

If yes, optional Wetland Site ID: Culvert 99.10

Remarks: (Explain alternative procedures here or in a separate report.)

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes _____ | No X | Depth (inches): _____ |
| Water Table Present? | Yes _____ | No X | Depth (inches): _____ |
| Saturation Present? (includes capillary fringe) | Yes X | No _____ | Depth (inches): surface |

**Wetland Hydrology Present?** Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**SOIL**

Sampling Point: A1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-3 | 10YR 3/2 | 100 | | | | | mu si l | |
| 3-11 | 2.5Y 5/1 | 88 | 2.5Y 7/1 | 10 | D | M | si l | |
| | | | 2.5Y 6/6 | 2 | C | PL | | |
| 11-18 | 10YR 6/1 | 90 | 2.5Y 6/6 | 10 | C | M | si l | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes X No ___

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: A1

| Tree Stratum (Plot size: 30'r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. None | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15' r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Cornus racemosa | 5 | x | FAC |
| 2. Rhus typhina | 5 | x | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 10 = Total Cover | | |

| Herb Stratum (Plot size: 5'r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Phalaris arundinacea | 86 | x | FACW |
| 2. Carex spp. | 20 | | FAC or wetter |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 106 = Total Cover | | |

| Woody Vine Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x 1 = |
| FACW species | | x 2 = |
| FAC species | | x 3 = |
| FACU species | | x 4 = |
| UPL species | | x 5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ___ Rapid Test for Hydrophytic Vegetation
- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Vermont Railway, Culvert 99.10 City/County: Ferrisburgh/Addison Sampling Date: 4/15/13

Applicant/Owner: VTrans State: VT Sampling Point: A2

Investigator(s): Charlotte Brodie Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None

Slope (%): 4 Lat: 44.1611 Long: -73.22160 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No X | **Is the Sampled Area within a Wetland?** Yes _____ No X |
| Hydric Soil Present? | Yes _____ | No X | If yes, optional Wetland Site ID: _____ |
| Wetland Hydrology Present? | Yes _____ | No X | |

Remarks: (Explain alternative procedures here or in a separate report.)

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes _____ | No X | Depth (inches): _____ |
| Water Table Present? | Yes _____ | No X | Depth (inches): _____ |
| Saturation Present? (includes capillary fringe) | Yes _____ | No X | Depth (inches): _____ |

**Wetland Hydrology Present?** Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**SOIL**

Sampling Point: A2

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 2.5Y 4/2 | 100 | | | | | | |
| 2-10 | 2.5Y 4/3 | 100 | | | | | | |
| 10-18 | 2.5Y 4/2 | 100 | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ____ **No** X

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: A2

| Tree Stratum (Plot size: 30'r) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. None | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15' r) | | | |
|---|---|---|---|
| 1. None | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | = Total Cover | | |

| Herb Stratum (Plot size: 5'r) | | | |
|---|---|---|---|
| 1. Phleum pratense | 63 | x | FACU |
| 2. Poa compressa | 38 | x | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 101 = Total Cover | | |

| Woody Vine Stratum (Plot size: ) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: |
|---|---|---|
| OBL species | | x 1 = |
| FACW species | | x 2 = |
| FAC species | | x 3 = |
| FACU species | | x 4 = |
| UPL species | | x 5 = |
| Column Totals: | (A) | (B) |

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

- ___ Rapid Test for Hydrophytic Vegetation
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**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Project #620040FC

# VTR Railway, Culvert #99.10
# Photo Exhibit

2/12/14

***North side looking towards railroad***

***South side, looking south. Mapped Indiana bat habitat to southwest***

# VTR Railway, Culvert #99.10
# Photo Exhibit



***South side, looking towards railroad***

Charlotte Brodie <cbrodie@dubois-king.com>

# VT Rail project, Mile Marker 99.10, Ferrisburgh, VT

**vonOettingen, Susi** <susi_vonoettingen@fws.gov> Thu, Jul 30, 2015 at 3:53 PM
To: Charlotte Brodie <cbrodie@dubois-king.com>
Cc: Peter Bero <pbero@dubois-king.com>, "Gingras, Glenn" <glenn.gingras@state.vt.us>, "Darling, Scott" <scott.darling@state.vt.us>

I'm not sure what Scott would say, but if those trees are going to be cut, I would suggest removing them in the off season. With leaf off it's hard to tell if there's a closed canopy (google earth seems to show it is). If the trees are truly isolated from a potential travel corridor, then it's less likely they could be used as roost trees.

Either northern long-eared bats or Indiana bats could use the trees if the structure (crevices, cracks, exfoliating bark) is present. I can't tell what the aspen are like.

For Indiana bats I believe our TOY is April 15 through October 31.

Susi

**********
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Endangered Species Biologist
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