

# Shoreland Permit By Notification

## NCES Seep Restoration Project

### Prepared For

North Country Environmental Services, Inc. (NCES)  
581 Trudeau Road  
Bethlehem, NH 03574

### Prepared By

Normandeau Associates, Inc.  
25 Nashua Road  
Bedford, NH 03110  
(603) 472-5191  
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and

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November 2023



# SHORELAND PERMIT BY NOTIFICATION (PBN) NOTIFICATION FORM



Water Division/Land Resources Management  
Shoreland Program

[Check the Status of your PBN](#)

RSA/Rule: RSA 483-B/Env-Wq 1400

<div style="border: 2px solid blue; padding: 5px; color: blue; font-weight: bold; font-size: 1.2em;">RECEIVED</div> <p style="font-size: 0.8em;">Administrative Use Only NOV 20 2023 NHDES LAND RESOURCES MANAGEMENT</p>	Administrative Use Only	<input checked="" type="checkbox"/> PBN Accepted, Expires: 11/22/2028	
		<input type="checkbox"/> PBN Rejected	Reviewer's Initials: MF
		File No.: 2023-03072	Admin's Initials: BJH
		Check No.: 117434	Amount: 200.00

This form requests authorization to excavate, fill, or construct new structures within the protected shoreland, which is 250 feet landward of the reference line of public waters, as regulated under RSA 483-B. Refer to the cover sheet to determine your eligibility to use this form in lieu of the standard Shoreland Permit Application. **Please note:** Notification packages missing required components will be rejected and the fee will not be returned.

<b>SECTION 1 - PROPERTY OWNER (RSA 483-B:5-b; Env-Wq 1406.17)</b>			
LAST NAME, FIRST NAME, M.I.: North Country Environmental Services, Inc. c/o John Gay			
MAILING ADDRESS: 1855 VT Route 100	TOWN/ CITY: Hyde Park	STATE: VT	ZIP CODE: 05655
PHONE: 802-651-5454	EMAIL: John.Gay@casella.com		
<b>SECTION 2 - PROJECT LOCATION (RSA 483-B:5-b; Env-Wq 1406.17)</b>			
ADDRESS: Muchmore Road/CCC Road	TOWN/ CITY: Bethlehem	STATE: NH	ZIP CODE: 03574
WATERBODY NAME: Ammonoosuc River	TAX MAP/ LOT: 419/25/00		
<b>SECTION 3 - CONTRACTOR OR AGENT (Env-Wq 1406.17)</b>			
LAST NAME, FIRST NAME, M.I.: McCloy, William S			
MAILING ADDRESS: PO Box 205	TOWN/ CITY: Rutland	STATE: VT	ZIP CODE: 05701
PHONE: 1-802-861-7038	EMAIL: wmcclloy@normandean.com		
<b>SECTION 4 - PROJECT DESCRIPTION (Env-Wq 1406.17)</b>			
Provide a <b>brief</b> description of the proposed project including square footage of impacts and dimensions of new structures.			
North Country Environmental Services, Inc. is seeking approval from NHDES for a Second Seep Restoration project to remove iron-stained sediment that has accumulated in portions of a wetland and seep/stream complex since a previous restoration, completed in 2010. The project will result in 2,900 sq. ft. of impacts to the Protect Shoreland for the temporary construction of a wooden boardwalk.			
TOTAL SQUARE FEET OF IMPACT: 2,900 TOTAL SQUARE FEET OF NET CHANGE IN <u>IMPERVIOUS</u> AREA: 0			
Total impact area is determined by the sum of all areas disturbed by excavation, fill, and construction. Examples include, but are not limited to: constructing new driveways, constructing new structures, removing or replacing structure foundations, grading, and installing a new septic system or well.			



[shoreland@des.nh.gov](mailto:shoreland@des.nh.gov) or (603) 271-2147  
 NHDES Shoreland Program, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095  
[www.des.nh.gov](http://www.des.nh.gov)

<b>SECTION 5 - PBN CRITERIA (RSA 483-B:5-b; Env-Wq 1406.05)</b>	
Check one of the following project type criteria.	
<input type="checkbox"/>	1. This project impacts less than 1,500 square feet in total, with a net increase in impervious area, if any, of no more than 900 square feet. <i>PBN Impact Limit: 1,500 square feet/ Fee: \$400.</i>
<input checked="" type="checkbox"/>	2. This project is proposed for the purpose of stormwater management improvements, erosion control, or environmental restoration or enhancement. <i>PBN Impact Limit: None/ Fee: \$200.</i>
<input type="checkbox"/>	3. The project is for the maintenance, repair, and improvement of public utilities, public roads, and public access facilities. <i>PBN Impact Limit: None/ Fee: \$400.</i>
<input type="checkbox"/>	4. The project consists of geotechnical borings, test wells, drinking water wells or is a site remediation project and meets the requirements of Env-Wq 1406.05. <i>PBN Impact Limit: None / Fee: \$400.</i>
<b>SECTION 6 - FEE (RSA 483-B:5-b; Env-Wq 1406.16)</b>	
Consult Section 5 to determine fee. Make checks and money orders payable to "Treasurer - State of NH". Undated checks <b>cannot</b> be accepted. TOTAL FEE: \$200	
<b>SECTION 7 - PHOTOS (RSA 483-B:5-b; Env-Wq 1406.16)</b>	
<input checked="" type="checkbox"/>	Dated photographs of each area proposed to be impacted are required for all projects.
<b>SECTION 8 - PLAN REQUIREMENTS (RSA 483-B:5-b; Env-Wq 1406.16)</b>	
Check YES or NO to all statements, and review the applicable plan requirements. If your plans do not include the information that is required, your notification will be rejected.	
<input checked="" type="checkbox"/> YES	<b>Required for all projects:</b> A clear and detailed plan of work depicting, at a minimum, all impact areas, the <a href="#">reference line</a> , and property lines. Plans that are not to scale must show all relevant dimensions and distances from the reference line and dimensions.
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	This project proposes an increase in <a href="#">impervious</a> (i.e. non-permeable) area. Plans must include the dimensions and locations of <b>all</b> existing and proposed impervious surfaces on the lot that are within 250 feet of the reference line. Decks are typically considered impervious.
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	< 20% This project proposes an increase in impervious area, and the total post-construction impervious area on the lot within 250 feet of the reference line will not exceed 20%.
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	20 – 30% This project proposes an increase in impervious area such that the total impervious area of the lot within 250 feet of the reference line will be greater than 20% but less than 30%. Plans must include a <a href="#">stormwater management system</a> that will infiltrate increased stormwater runoff from development per <a href="#">RSA 483-B:9, V(g)(2)</a> and in accordance with <a href="#">Env-Wq 1500</a> .
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	> 30% This project proposes an increase in impervious area such that the total impervious area on the lot within 250 feet of the reference line will be greater than 30%. Plans must include a <a href="#">stormwater management system</a> designed and certified by a professional engineer to account for all new development, <b>and</b> plans must demonstrate how the vegetation point score is met per <a href="#">RSA 483-B:9, V(g)(1,3)</a> .
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	This project proposes impacts within 50 feet of the reference line. Plans and photos must show each area of the <a href="#">waterfront buffer</a> that will be impacted, including groundcover, and calculate the tree and sapling point scores in accordance with the <a href="#">Vegetation Management Fact Sheet</a> .
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	This project proposes impacts between 50 and 150 feet of the reference line. Plans must depict the 25% area of the woodland buffer to be designated and maintained as natural woodland. See the <a href="#">Vegetation Management Fact Sheet</a> .

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<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<p>This project proposes to install or expand an <u>accessory structure</u>, such as a patio or shed, within 50 feet of the reference line. All plans <i>must</i> demonstrate that the height, size, and setback limitations for accessory structures will be met. These limitations are described within the <u>Accessory Structure Fact Sheet</u>.</p> <p>The <u>shoreland frontage</u> on this lot is: <u>1,812</u> linear feet. <input type="checkbox"/> N/A – There is no direct frontage on this lot.</p>	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<p>This project proposes a pervious (i.e. permeable) surface technology. Plans must include the location and type of the surface and a cross-section depicting the construction method, materials, and specifications as to how this surface will be maintained as a pervious technology. The notification must also include a maintenance plan describing how the surfaces will be maintained pervious.</p>	
<p><b>SECTION 9 - CONDITIONS (Env-Wq 1406.20; RSA 483-B:9, V, (d))</b>          Initial each of the required conditions below.</p>		
<p>JG 1. Erosion and siltation control measures shall: be installed prior to the start of work; be maintained throughout the project; and remain in place until all disturbed surfaces are stabilized.</p> <p>JG 2. Erosion and siltation controls shall be appropriate to the size and nature of the project and to the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to wetlands or surface waters.</p> <p>JG 3. No person undertaking any activity in the protected shoreland shall cause or contribute to, or allow the activity to cause or contribute to, any violations of the surface water quality standards established in Env-Ws 1700 or successor rules in Env-Wq 1700.</p> <p>JG 4. Any fill used shall be clean sand, gravel, rock, or other suitable material.</p> <p>JG 5. For any project where mechanized equipment will be used, orange construction fence shall: be installed prior to the start of work at the limits of the temporary impact area as shown on the plans approved as part of a permit or accepted as part of the permit by notification; be maintained throughout the project; and remain in place until all mechanized equipment has been removed from the site.</p>		
<p><b>SECTION 10 - CERTIFICATIONS (Env-Wq 1406.18)</b>          Initial each of the required certifications below.</p>		
<p>JG 1. The property owner shall sign the notification form below.</p> <p>JG 2. The signature(s) shall constitute certification that: the information provided is true, complete, and not misleading to the knowledge and belief of the signer; the signer understands that any permit by notification obtained based on false, incomplete, or misleading information is not valid; the project as proposed complies with the <u>minimum standards</u> established in RSA 483-B:9, V and will be constructed in strict accordance with the proposal; the signer accepts the responsibility for understanding and maintaining compliance with RSA 483-B and these rules; the signer understands that an accepted shoreland permit by notification shall not exempt the work proposed from other state, local, or federal approvals; the signer understands that incomplete notifications shall be rejected and the notification fee shall not be returned; and the signer is subject to the applicable penalties in RSA 641, <i>Falsification In Official Matters</i>.</p> <p>JG 3. The signature of the property owner certifies that the property owner has authorized the agent to act on the property owner's behalf for purposes of the notification. (<input type="checkbox"/> Not Applicable)</p>		
<p><b>SECTION 11 - REQUIRED SIGNATURE (RSA 483-B:5-b; Env-Wq 1406.18)</b></p>		
SIGNATURE (OWNER): 	PRINT NAME LEGIBLY: John Gay	DATE: 11/10/23
SIGNATURE (AGENT, IF APPLICABLE): 	PRINT NAME LEGIBLY: William McCloy	DATE: 11/10/23

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[www.des.nh.gov](http://www.des.nh.gov)

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**PROJECT INTRODUCTION**

Normandeau Associates, Inc. (Normandeau) and Sanborn Head & Associates, Inc. (Sanborn Head) have prepared this Shoreland Permit By Notification on behalf of North Country Environmental Services, Inc. (NCES) for work located at the NCES facility at 581 Trudeau Road in Bethlehem, New Hampshire. NCES is seeking approval from the New Hampshire Department of Environmental Services (NHDES) to conduct an aesthetic restoration of an existing groundwater seep to remove iron-stained sediment. An aesthetic restoration project at the site was completed in 2010. In accordance with a January 5, 2022 Settlement Agreement with Toxics Action Center, Inc. and Conservation Law Foundation, NCES is required to submit applications for all necessary permits and regulatory approvals needed to perform a second sediment removal and restoration project at the site; NCES proposes to utilize the same methods that were employed in the initial restoration project. Normandeau provided wetlands consulting and wetlands delineation services during preparation of this application. Sanborn Head designed the proposed restoration measures and methods in consultation with Normandeau and NCES.

**SITE AND PROJECT DESCRIPTION**

The sediment removal and restoration work project is located along a heavily forested, steep embankment above the Ammonoosuc River on property owned by NCES. In this area, a seep (i.e., Main Seep) emerges from the south bank of the Ammonoosuc River at an elevation approximately 80 feet above the River. The seep and associated streams and drainages are located within a forested wetland system. The seepage spans a lateral distance of about 25 feet. The slope of the south bank in the vicinity of the Main Seep is about 1.5H:1V, and in some areas, steeper. The slope is covered with dense brush, trees, and boulders and, in areas of bank seepage along the slope, wetland-type vegetation is present. The perennial stream, referred to as the Drainage Channel stream, begins in the area of the Main Seep. The focus of the Second Restoration Project is to physically remove iron and manganese precipitate on soil and vegetation in the area of the Main Seep and Drainage Channel stream that has accumulated since the 2010 aesthetic restoration work was completed. The project proposes to physically remove the stained sediment from the Main Seep and adjacent affected wetland areas by way of a suction dredging with a vacuum pump and/or manual excavation using hand shovels and 5-gallon buckets. Please see Attachments B and C for the overall construction sequence for the Project.

**DISCUSSION OF IMPACTS UNDER SHORELAND PROGRAM JURISDICTIONAL AUTHORITY**

While much of the Second Restoration Project falls within the 250-foot Protected Shoreland of the Ammonoosuc River, most of the Project is also located within delineated wetlands, where Wetland Bureau jurisdiction takes precedence. The proposed temporary impacts to those portions of the project within the delineated wetland area are discussed in the Standard Dredge and Fill Wetland Permit Application submitted for the Project. A total of 2,900 sq. ft. of the Project is located outside of delineated wetland but still lies within the 250-foot Protected Shoreland of the Ammonoosuc River and is the focus of this Shoreland Permit By Notification.

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Please refer to the area highlighted in pink on Attachment B – Final Plans, Proposed Restoration Area Quantities Worksheet, for the footprint of temporary impacts to the Protect Shoreland outside of Wetland Bureau jurisdiction. The proposed work in this area shall consist of mowing of herbaceous and small woody shrubs and saplings that have grown up within the last 13 years (since the last restoration project in 2010) and establishment of a temporary boardwalk/walkway in the upland forest to facility the restoration work. The boardwalk/walkway is estimated to cover a 320 sq. ft. area and will be removed following completion of suction and/or manual dredging and all disturbed substrate stabilized per the project plans. No tree cutting is proposed, although minor trimming may be required along the path of the boardwalk/walkway. Photos of the Protected Shoreland to be temporarily impacted by these activities are provided in Attachment A – Protected Shoreland Photos. Photos of other portions of the Project under dual Wetland Bureau and Shoreland Program jurisdiction to be impacted are available in the associated Standard Dredge and Fill Wetlands Permit Application.

In addition to the information provided in the Plans (see Attachment B), some additional comments and details are provided below.

#### Project Timing and Monitoring

It is anticipated that, pending receipt of all required permits and driven in part by the terms of the settlement that applies to this project activity (project need), work will be completed in Summer 2024. The construction sequence is described in detail in the Plans and Attachment C.

NCES proposes to complete a post-construction reviews, to include a review of the impacted areas, photos and written summary of the extent of vegetation seeding revegetation, of the site as follows:

- Review of the site at the end of construction (expected summer or fall 2024)
- Once-per-year, growing season reviews in 2025 and 2026 (or construction completion +1 and +2 if not completed in 2024); reports and photologs and list of any corrective measures to be submitted by 12/31 of the year

#### Hydric Soils and Plantings

The only type of plantings proposed for this project are wetland and upland seeding of temporarily disturbed areas; no trees or shrubs are expected to be impacted and no tree or shrub plantings are proposed. The wetland seed mix, previously approve by NH NHB, are to be either NEW ENGLAND WETMIX<sup>1</sup> (ordered without ironweed) or VT WETLAND PLANT SUPPLY WET MEADOW MIX<sup>2</sup>. The upland seed mix will be a Construction Slope Mix as specified on the Erosion Control and Restoration Details sheet in Attachment B. These seed mixes will be applied as per the specifications of the manufacturer. It is expected that seeds in the topsoil seedbank will also supplement the applied seed mixes. See Attachment B.

Hydric soils will not be imported to support this project; substantial impacts to hydric soils are not anticipated. Any disturbed areas will be raked smooth, seeded and mulched with straw.

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<sup>1</sup> <https://newp.com/wp-content/uploads/2018/04/WETMIX2018.pdf>

<sup>2</sup> <http://www.vermontwetlandplants.com/vermont-wet-meadow-detention-basin-mix/>



November 9, 2023

NHDES Water Division/Land Resources Management  
Shoreland Program  
29 Hazen Drive, P.O. Box 95  
Concord, New Hampshire 03302

Re: Shoreland Permit by Notification (PBN)  
North Country Environmental Services, Inc.: Seep Restoration Project  
Bethlehem, New Hampshire

Dear NHDES:

On behalf of the North Country Environmental Services, Inc. (NCES), Normandeau Associates, Inc. (Normandeau) is submitting this Shoreland Permit By Notification for the proposed Seep Restoration Project in accordance with the Shoreland Water Quality Protection Act (RSA 483-B) and its associated rules, Env-Wq 1400.

NCES is seeking approval from the New Hampshire Department of Environmental Services (NHDES) to conduct an aesthetic restoration of an existing groundwater seep to remove iron-stained sediment. An aesthetic restoration project at the site was completed in 2010. In accordance with a January 5, 2022 Settlement Agreement with Toxics Action Center, Inc. and Conservation Law Foundation, NCES is required to submit applications for all necessary permits and regulatory approvals needed to perform a second sediment removal and restoration project at the site; NCES proposes to utilize the same methods that were employed in the initial restoration project. Normandeau provided wetlands consulting and wetlands delineation services during preparation of this application. Sanborn Head designed the proposed restoration measures and methods in consultation with Normandeau and NCES. The proposed restoration, if implemented, will result in a total of 2,900 square feet of temporary impact to the Protected Shoreland of the Ammonoosuc River. An additional 15,333 square feet of temporary impact to delineated wetlands and streams, some of which is within the Protected Shoreland Ammonoosuc River, is proposed in an associated Standard Dredge and Fill Permit Wetlands Permit Application.

Included with this submittal is a copy of the Shoreland PBN application fee check, a completed Permit Application Form, a detailed project overview narrative, required plans and figures, and additional supporting materials. A pre-application meeting and site visit for the overall project was held on June 13, 2023 with Stephanie Tetreault and Kurt Yuengling and a second pre-application meeting was held virtually on September 21, 2023 with Kurt Yuengling. Kurt Yuengling confirmed that mitigation was not required due to the nature of proposed impacts.

Please feel free to contact William McCloy at 802-855-1246 or at [wmcclroy@normandeau.com](mailto:wmcclroy@normandeau.com) if you have any questions.

Sincerely,





Principal Scientist

Attachments: Wetlands Permit Application

CC: North Country Environmental Services, Inc., Joe Gay via Email  
US Army Corps of Engineers, Lindsey Lefebvre via Email

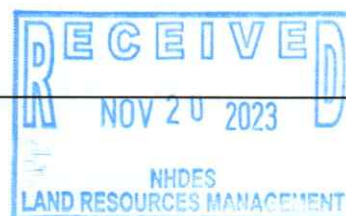
**Photographs**



**Photo 1. Upland forested area west of seep, viewing north/downslope. (6/23/23)**



**Photo 2. Upland forest area west of seep, viewing east/towards the seep. (6/23/23)**



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The following construction sequence is proposed for the project:

1. INSTALL EROSION AND SEDIMENT CONTROLS.
2. PREPARE FORMER WOODS ROAD FROM USFS FR313 TO STAGING/FOREBAY AREA AND PROPOSED STAGING AREA, INCORPORATING APPROPRIATE EROSION CONTROL MEASURES SPECIFIC TO THESE AREAS. CLEARING SHALL NOT BEGIN UNTIL ALL EROSION AND SEDIMENT CONTROL DEVICES HAVE BEEN INSTALLED.
3. CONSTRUCT SETTLING POND AND FOREBAY.
4. CONFIRM PLACEMENT OF GRAVEL BASE MATERIAL (NHDOT ITEM 304.3 OR EQUIVALENT APPROVED BY ENGINEER) IN AREAS OF WOODS ROAD AND PROPOSED STAGING AREA TO ACCOMMODATE LIGHT VEHICLE AND EQUIPMENT TRAFFIC AND MAINTAIN AS NEEDED.
5. DEPLOY EROSION/SEDIMENTATION CONTROL MEASURES IN SEEP RESTORATION WORK AREA.
6. INSTALL AND MAINTAIN TURBIDITY CURTAINS WITH FLOATATION COLLARS AT STREAM OUTLET TO AMMONOOSUC RIVER. SECURE PER MANUFACTURERS RECOMMENDATIONS AND/OR WITH SAND BAGS AND/OR NATIVE RIVER STONE.
7. DEWATERING AND SEDIMENT REMOVAL SHALL OCCUR IN A PHASED, STEP-WISE FASHION TO LIMIT IMPACTS. THE WORK SHALL BEGIN AT THE TOP OF THE SLOPE (AT THE MAIN SEEP) AND CONTINUE DOWNSLOPE, COVERING APPROXIMATELY 50 LINEAR FEET AT A TIME, AT THE DISCRETION OF THE ENGINEER. THE WORK IN THE UPLAND STREAM AREAS SHALL BE COMPLETED AND THE AREA RESTORED PRIOR TO COMMENCING WORK DOWNSTREAM. SEDIMENT REMOVAL IS NOT ANTICIPATED TO BE REQUIRED IN THE APPROXIMATE BOTTOM THIRD OF THE STREAM CHANNEL AS INDICATED ON THE DRAWINGS.
8. INSTALL SAND BAG CHECK DAMS, AS NECESSARY WHERE SHOWN WITHIN STREAM CHANNEL PRIOR TO SEDIMENT EXCAVATION.
9. DE-WATER MAIN SEEP. PUMP WATER TO DE-WATERING TRENCH LOCATED AT LIMITS OF STAGING AREA (SHOWN).
10. REMOVE IRON-STAINED SEDIMENT FROM AREA OF MAIN SEEP AND OTHER AREAS, AS PRACTICAL, BY USE OF SUCTION DREDGE OR OTHER ENGINEER APPROVED MEANS. DREDGE MATERIALS SHALL BE TRANSPORTED TO THE LANDFILL DETENTION AREA FOR DE-WATERING OR SOLIDIFYING WITH SAWDUST. ONCE DE-WATERED OR SOLIDIFIED, THE MATERIAL SHALL BE DISPOSED IN THE NCES LINED LANDFILL.
11. UPON COMPLETION OF SEDIMENT EXCAVATION FROM MAIN SEEP, THE EXISTING NON-WOVEN LINER SHALL BE INSPECTED AND REPLACED AS NEEDED TO FACILITATE FUTURE SEDIMENT GAUGING, IF NECESSARY.
12. SUCTION DREDGE AND EXCAVATION OF SEDIMENT SHALL COMMENCE FROM THE MAIN SEEP DOWNSLOPE TOWARD THE RIVER. SEDIMENT REMOVAL IS NOT ANTICIPATED TO BE REQUIRED IN THE APPROXIMATE BOTTOM THIRD OF THE STREAM CHANNEL AS INDICATED ON THE DRAWINGS.
13. DIVERT STREAM FLOW, WHERE POSSIBLE, USING SAND BAG CHECK DAMS AND LIMITED HAND EXCAVATION IN THE STREAM CHANNEL TO DEWATER SECTIONS OF THE WORK AREA PRIOR TO EXCAVATION.
14. AS NEEDED, AREAS BELOW THE MAIN SEEP SHALL BE EXCAVATED BY USE OF SUCTION DREDGE AS FEASIBLE, OR MANUALLY USING HAND SHOVELS AND 5-GALLON BUCKETS, OR

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OTHER ENGINEER APPROVED MEANS. SEDIMENT EXCAVATED VIA SUCTION DREDGE SHALL BE COLLECTED IN THE VACUUM TRUCK AND TRANSPORTED TO THE NCES LANDFILL FOR BULKING AND DISPOSAL. IF SEDIMENT IS MANUALLY REMOVED VIA BUCKETS, ONCE EXCAVATED, WORKERS SHALL TRANSPORT MATERIALS BY USE OF TEMPORARY WOODEN WALKWAYS OR MATS OVER THE WETLAND TO THE VACUUM TRUCK FOR DISPOSAL. CARE SHALL BE TAKEN TO LIMIT IMPACT TO WETLAND VEGETATION AND REVEGETATED/STABILIZED AREAS.

15. RESTORE EXCAVATED AREA TO AS CLOSE TO EXISTING CONDITIONS AS FEASIBLE. PLACE NATIVE WOODY DEBRIS IN STREAM CHANNEL. PLACEMENT SHALL BE APPROXIMATELY 10% OF STREAMBED AREA, AT THE DISCRETION OF THE ENGINEER.

16. UPON COMPLETION OF EXCAVATION AND RESTORATION, REMOVE SILTATION/SEDIMENTATION CONTROLS WITHIN THE WETLAND, RIVER, STREAM CHANNEL AND SEEP. REMOVE THE CURTAIN AND RELATED COMPONENTS FROM THE RIVER IN A MANNER TO LIMIT TURBIDITY.

17. REGRADE THE STAGING AND SETTLING POND AREAS TO MATCH ADJACENT SLOPES, SEED AND MULCH THE CONSTRUCTION STAGING AREA AND HAUL ROAD WITHIN 3 DAYS OF COMPLETION OF WORK. MAINTAIN SILTATION/SEDIMENT CONTROLS (I.E., FILTER LOGS) UNTIL THE SITE IS STABILIZED AND REVEGETATED.

Please refer to project plans, located in Attachment B, for additional details.

NCS submitted a Request for Jurisdiction Determination to the following agencies on the dates indicated:

- US Army Corps of Engineers – May 12, 2023
- NHDES Wetlands Bureau – May 17, 2023
- US Fish and Wildlife Service – submitted through IPaC request on May 17, 2023

NCS also reached out to USEPA on May 15, 2023 via email and the response was that the Jurisdictional Determination is completed by USACE as part of the Federal Permit and is coordinated with EPA.

Sanborn Head submitted Intent to Submit Permit Applications notification emails to the following interested parties on May 26, 2023:

- Bethlehem Conservation Commission
- Bethlehem Village District
- Ammonoosuc River Local Advisory Committee

A pre-application meeting and site visit was held on June 13, 2023 with Stephanie Tetreault and Kurt Yuengling and a second pre-application meeting was held virtually on September 21, 2023 with Kurt Yuengling.

Copies of the permit applications will be provided to the Town of Bethlehem and the Ammonoosuc River Local Advisory Committee as required. In addition, abutters will be notified/have been notified via Certified Mail.

Feedback that would result in changes to the project plans or impacts will be provided to the NHDES and Corps of Engineers as needed.



**STANDARD DREDGE AND FILL  
WETLANDS PERMIT APPLICATION**  
Water Division/Land Resources Management  
Wetlands Bureau  
[Check the Status of your Application](#)



RSA/Rule: RSA 482-A/Env-Wt 100-900

APPLICANT'S NAME: **North Country Environmental Services, Inc. (NCES)**

TOWN NAME: **Bethlehem**

	<p align="center"><b>COMPLETE</b></p> <p align="center">Administrative NOV 20 2023 Use Only</p>	<p align="center">Administrative Use Only</p>	File No.: <b>2023-63087</b>
			Check No.: <b>117435</b>
			Amount: <b>6133.20</b>
			Initials:

A person may request a waiver of the requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interest of the public or the environment but is still in compliance with RSA 482-A. A person may also request a waiver of the standards for existing dwellings over water pursuant to RSA 482-A:26, III(b). For more information, please consult the [Waiver Request Form](#).

<p><b>SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))</b></p> <p>Please use the <a href="#">Wetland Permit Planning Tool (WPPT)</a>, the Natural Heritage Bureau (NHB) <a href="#">DataCheck Tool</a>, the <a href="#">Aquatic Restoration Mapper</a>, or other sources to assist in identifying key features such as: <a href="#">priority resource areas (PRAs)</a>, <a href="#">protected species or habitats</a>, coastal areas, designated rivers, or designated prime wetlands.</p>	
Has the required planning been completed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the property contain a PRA? If yes, provide the following information:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>Does the project qualify for an Impact Classification Adjustment (e.g. NH Fish and Game Department (NHF&amp;G) and NHB agreement for a classification downgrade) or a Project-Type Exception (e.g. Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04.</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>Protected species or habitat?                             <ul style="list-style-type: none"> <li>If yes, species or habitat name(s):</li> <li>NHB Project ID #: <b>NHB23-1384</b></li> </ul> </li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>Bog?</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>Floodplain wetland contiguous to a tier 3 or higher watercourse?</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>Designated prime wetland or duly-established 100-foot buffer?</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone?</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the property within a Designated River corridor? If yes, provide the following information:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> <li>Name of Local River Management Advisory Committee (LAC): <b>Ammonoosuc River LAC</b></li> <li>A copy of the application was sent to the LAC on Month: <b>11</b> Day: <b>13</b> Year: <b>2023</b></li> </ul>	

For dredging projects, is the subject property contaminated? • If yes, list contaminant: _____	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is there potential to impact impaired waters, class A waters, or outstanding resource waters?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
For stream crossing projects, provide watershed size (see <a href="#">WPPT</a> or Stream Stats): N/A	
<b>SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))</b>	
Provide a <b>brief</b> description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached"; please use the space provided below.	
<p>North Country Environmental Services, Inc. (NCES) is seeking approval from the New Hampshire Department of Environmental Services (NHDES) to conduct a Second Seep Restoration project of an existing groundwater seep/stream and wetland complex to remove iron-stained sediment. The purpose of the project is to remove iron-stained sediment that has accumulated within portions of the wetland and seep/stream complex since the last restoration. An identical aesthetic restoration project at the site was completed in 2010. The need for the project is defined in a January 5, 2022 Settlement Agreement with Toxics Action Center, Inc. and Conservation Law Foundation whereby NCES is required to submit applications for all necessary permits and regulatory approvals needed to perform a second sediment removal and restoration project at the site. NCES proposes to utilize the same methods that were employed in the initial restoration project.</p> <p>The project includes the restoration of an existing access road and staging area adjacent to the wetland and seep/stream complex; this access and staging area was installed during the initial restoration project in 2010. Contractors will construct a temporary settling pond/forebay and a parking area for a vacuum truck along with temporary ESCs, including sediment curtains in the Ammonoosuc River. Temporary wooden walkways will be installed as needed to provide safe access to work areas while minimizing impact to wetland and seep/stream areas. Iron-stained areas will be systematically dewatered in a phased, step-wise fashion beginning at the top of the seep and working downslope. Iron-stained sediment will be vacuumed out, dewatered, and solidified with sawdust prior to disposal within the existing lined landfill. All work will be completed by hand and all impacts will be temporary in nature. Disturbed areas will be seeded and mulched. Monitoring is proposed, post-construction.</p>	
<b>SECTION 3 - PROJECT LOCATION</b>	
Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.	
ADDRESS: Muchmore Road/CCC Road	
TOWN/CITY: Bethlehem	
TAX MAP/BLOCK/LOT/UNIT: 419/25/00	
US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: Unnamed Tributary to Ammonoosuc River <input type="checkbox"/> N/A	
(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places): 44.264791° North -71.624499° West	

<b>SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a))</b>		
If the applicant is a trust or a company, then complete with the trust or company information.		
NAME: North Country Environmental Services, Inc. c/o John Gay		
MAILING ADDRESS: 1855 VT Route 100		
TOWN/CITY: Hyde Park	STATE: VT	ZIP CODE: 05655
EMAIL ADDRESS: John.Gay@casella.com		
FAX: [REDACTED]	PHONE: 802-651-5454	
ELECTRONIC COMMUNICATION: By initialing here: JG, I hereby authorize NHDES to communicate all matters relative to this application electronically.		
<b>SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c))</b>		
<input type="checkbox"/> N/A		
LAST NAME, FIRST NAME, M.I.: McCloy, William S		
COMPANY NAME: Normandeau Associates, Inc.		
MAILING ADDRESS: PO Box 205		
TOWN/CITY: Rutland	STATE: VT	ZIP CODE: 05701
EMAIL ADDRESS: wmccloy@normandeau.com		
FAX: [REDACTED]	PHONE: 1-802-861-7038	
ELECTRONIC COMMUNICATION: By initialing here WSM, I hereby authorize NHDES to communicate all matters relative to this application electronically.		
<b>SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b))</b>		
If the owner is a trust or a company, then complete with the trust or company information.		
<input checked="" type="checkbox"/> Same as applicant		
NAME: [REDACTED]		
MAILING ADDRESS: [REDACTED]		
TOWN/CITY: [REDACTED]	STATE: [REDACTED]	ZIP CODE: [REDACTED]
EMAIL ADDRESS: [REDACTED]		
FAX: [REDACTED]	PHONE: [REDACTED]	
ELECTRONIC COMMUNICATION: By initialing here [REDACTED], I hereby authorize NHDES to communicate all matters relative to this application electronically.		



**SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))**

Describe how the resource-specific criteria have been met for each chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters):  
 See Restoration/Enhancement Project worksheet; attached information.

Wetlands were delineated and classified as per the applicable requirements set forth in Env-Wt 400. The project has been classified as a "Major" project based on the length of stream to be temporarily impacted. No PRAs are present within the Project Area.

The permit application and attachments herein include the details as per the applicable requirements set forth in Env-Wt 500. See attached worksheets and additional information.

Env-Wt 600 applies to Coastal Lands and Tidal Waters/Wetlands and is not applicable for this project.

Env-Wt 700 applies to Prime Wetlands and is not applicable for this project.

Env-Wt 800 applies to Compensatory Mitigation which is not required for this project based on coordination with NHDES and is not applicable for this project.

Env-Wt 900 applies primarily to Stream Crossings. No stream crossings are proposed and work in streams will abide by the necessary requirements.

**SECTION 8 - AVOIDANCE AND MINIMIZATION**

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)).\* Any project with unavoidable jurisdictional impacts must then be minimized as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#) and the [Wetlands Permitting: Avoidance, Minimization and Mitigation Fact Sheet](#). For minor or major projects, a functional assessment of all wetlands on the project site is required (Env-Wt 311.03(b)(10)).\*

Please refer to the application checklist to ensure you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). Use the [Avoidance and Minimization Checklist](#), the [Avoidance and Minimization Narrative](#), or your own avoidance and minimization narrative.

*\*See Env-Wt 311.03(b)(6) and Env-Wt 311.03(b)(10) for shoreline structure exemptions.*

**SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)**

If unavoidable jurisdictional impacts require mitigation, a mitigation [pre-application meeting](#) must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month:  Day:  Year:

N/A - Mitigation is not required

**SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c)**

Confirm that you have submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent unavoidable impacts that will remain after avoidance and minimization techniques have been exercised to the maximum extent practicable:  I confirm submittal.

N/A – Compensatory mitigation is not required

**SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))**

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without a permit).

For intermittent and ephemeral streams, the linear footage of impact is measured along the thread of the channel. *Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/ivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

Temporary impacts are impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland	0		<input type="checkbox"/>	14238		<input type="checkbox"/>
	Scrub-shrub Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Emergent Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Wet Meadow			<input type="checkbox"/>			<input type="checkbox"/>
	Vernal Pool			<input type="checkbox"/>			<input type="checkbox"/>
	Designated Prime Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Duly-established 100-foot Prime Wetland Buffer			<input type="checkbox"/>			<input type="checkbox"/>
Surface Water	Intermittent / Ephemeral Stream	0	0	<input type="checkbox"/>	25	25	<input type="checkbox"/>
	Perennial Stream or River	0	0	<input type="checkbox"/>	1070	1020	<input type="checkbox"/>
	Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - River			<input type="checkbox"/>			<input type="checkbox"/>
Banks	Bank - Intermittent Stream	0	0	<input type="checkbox"/>	0	0	<input type="checkbox"/>
	Bank - Perennial Stream / River	0	0	<input type="checkbox"/>	0	0	<input type="checkbox"/>
	Bank / Shoreline - Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
Tidal	Tidal Waters			<input type="checkbox"/>			<input type="checkbox"/>
	Tidal Marsh			<input type="checkbox"/>			<input type="checkbox"/>
	Sand Dune			<input type="checkbox"/>			<input type="checkbox"/>
	Undeveloped Tidal Buffer Zone (TBZ)			<input type="checkbox"/>			<input type="checkbox"/>
	Previously-developed TBZ			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - Tidal Water			<input type="checkbox"/>			<input type="checkbox"/>
<b>TOTAL</b>		<b>0</b>	<b>0</b>		<b>15333</b>	<b>1045</b>	

**SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)**

**MINIMUM IMPACT FEE:** Flat fee of \$400.

**NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION:** Flat fee of \$400 (refer to RSA 482-A:3, 1(c) for restrictions).

**MINOR OR MAJOR IMPACT FEE:** Calculate using the table below:

Permanent and temporary (non-docking): 15333 SF × \$0.40 = \$ 6133.20

Seasonal docking structure: SF × \$2.00 = \$

Permanent docking structure: SF × \$4.00 = \$

Projects proposing shoreline structures (including docks) add \$400 = \$

[lrn@des.nh.gov](mailto:lrn@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

Total = \$	6133.20
The application fee for minor or major impact is the above calculated total or \$400, whichever is greater = \$	
6133.20	

**SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05)**

Indicate the project classification.

<input type="checkbox"/> Minimum Impact Project	<input type="checkbox"/> Minor Project	<input checked="" type="checkbox"/> Major Project
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**SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)**

Initial each box below to certify:

Initials: JG _____ WSM	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials: JG _____ WSM	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.
Initials: JG _____ WSM	The signer understands that: <ul style="list-style-type: none"> <li>• The submission of false, incomplete, or misleading information constitutes grounds for NHDES to:                         <ol style="list-style-type: none"> <li>1. Deny the application.</li> <li>2. Revoke any approval that is granted based on the information.</li> <li>3. If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1.</li> </ol> </li> <li>• The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641.</li> <li>• The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact forestry SPN projects and minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.</li> </ul>
Initials: JG _____ WSM	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.

**SECTION 15 - REQUIRED SIGNATURES (Env-Wt 311.04(d); Env-Wt 311.11)**

SIGNATURE (OWNER):	PRINT NAME LEGIBLY: _____ JOHN GAY	DATE: 11/10/23
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER): _____	PRINT NAME LEGIBLY: _____	DATE: _____
SIGNATURE (AGENT, IF APPLICABLE):	PRINT NAME LEGIBLY: William S McCloy	DATE: 11/10/23

**SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))**

As required by RSA 482-A:3, I(a)(1), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

TOWN/CITY CLERK SIGNATURE: <i>Mary Jackson</i>	PRINT NAME LEGIBLY: MARY JACKSON
TOWN/CITY: <i>Bethlehem</i>	DATE: <i>11/17/2023</i>

**DIRECTIONS FOR TOWN/CITY CLERK:**

Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
3. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board.
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

**DIRECTIONS FOR APPLICANT:**

Submit the original permit application form bearing the signature of the Town/City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery at the address at the bottom of this page. Make check or money order payable to "Treasurer – State of NH".

**PROJECT INTRODUCTION**

Normandeau Associates, Inc. (Normandeau) and Sanborn Head & Associates, Inc. (Sanborn Head) have prepared this wetland permit application on behalf of North Country Environmental Services, Inc. (NCES) for work located at the NCES facility at 581 Trudeau Road in Bethlehem, New Hampshire. NCES is seeking approval from the New Hampshire Department of Environmental Services (NHDES) to conduct an aesthetic restoration of an existing groundwater seep to remove iron-stained sediment. An aesthetic restoration project at the site was completed in 2010. In accordance with a January 5, 2022 Settlement Agreement with Toxics Action Center, Inc. and Conservation Law Foundation, NCES is required to submit applications for all necessary permits and regulatory approvals needed to perform a second sediment removal and restoration project at the site; NCES proposes to utilize the same methods that were employed in the initial restoration project. Normandeau provided wetlands consulting and wetlands delineation services during preparation of this application. Sanborn Head designed the proposed restoration measures and methods in consultation with Normandeau and NCES.

**SITE AND PROJECT DESCRIPTION**

The sediment removal and restoration work project is located along a heavily forested, steep embankment above the Ammonoosuc River on property owned by NCES. In this area, a seep (i.e., Main Seep) emerges from the south bank of the Ammonoosuc River at an elevation approximately 80 feet above the River. The seep and associated streams and drainages are located within a forested wetland system. The seepage spans a lateral distance of about 25 feet. The slope of the south bank in the vicinity of the Main Seep is about 1.5H:1V, and in some areas, steeper. The slope is covered with dense brush, trees, and boulders and, in areas of bank seepage along the slope, wetland-type vegetation is present. The perennial stream, referred to as the Drainage Channel stream, begins in the area of the Main Seep. The focus of the Second Restoration Project is to physically remove iron and manganese precipitate on soil and vegetation in the area of the Main Seep and Drainage Channel stream that has accumulated since the 2010 aesthetic restoration work was completed.

The presence of the Main Seep is a typical expression of the hydrogeology of the area, which is comprised of three prominent soil units. From the ground surface down, these soil units include: (i) an upper glacial till unit that consists mainly of sands, silt, and lesser amounts of clay; (ii) stratified drift deposits comprised of silt and sands inter-fingered with coarse-grained "till-like" subunits; and (iii) a very dense glacial till unit comprised mainly of sand and gravel with lesser amounts of silt.

In the northeast portion of the landfill site, the soil consists primarily of stratified drift overlying the lower glacial till unit.

The texture and distribution of the soil types in the vicinity of the Main Seep and landfill represent a complicated geologic environment associated with multiple phases of deposition and glaciation, and include ice-contact deposits and moving and/or stagnant water deposits inter-fingered among the prominent soil units.

In the vicinity of the Main Seep, groundwater flows north toward the Ammonoosuc River from higher elevations in the south. While groundwater moves through the entire saturated soil column (up to 250 feet in thickness in the vicinity of the landfill), locally groundwater flow is prominent in zones of coarser-grained materials. The Main Seep is a surficial expression of such a zone of coarser-grained materials. It is likely that either a former glacial meltwater channel or stringer of gravelly soil provides for a zone of convergent groundwater flow from south to north, discharging at the Main Seep.

Other naturally-occurring iron-stained deposits occur at groundwater seeps along the south bank of the Ammonoosuc River between approximately 1,500 and 3,200 feet east (upstream) of the Main Seep. The Main Seep emerges at the contact between stratified drift and less permeable lower glacial till soils, discharging to the bank above the River. The Main Seep contains considerably higher flow than other areas of bank seepage. While the flow is expected to vary seasonally, on the basis of visual observations, typical flow rates at the head end of the Main Seep are estimated to be in the range of approximately 50 gallons per minute based on 2010 measurements.

The discoloration observed at the Main Seep is due to precipitation of iron and manganese from groundwater when the groundwater is oxidized as it emerges at the ground surface. Iron and manganese, which are naturally present in soil, dissolved under anaerobic (i.e., oxygen-deficient) conditions and are transported with groundwater. When the groundwater discharges under atmospheric (oxygen-rich) conditions at the Main Seep, the dissolved iron and manganese in groundwater are oxidized and precipitate out of solution, resulting in the iron and manganese oxide deposits along the bank at and below the Main Seep.

#### **PROPOSED CORRECTIVE ACTIONS**

The project proposes to physically remove the stained sediment from the Main Seep and adjacent affected wetland areas by way of vacuum pump.



STANDARD DREDGE AND FILL  
WETLANDS PERMIT APPLICATION  
ATTACHMENT A: MINOR AND MAJOR PROJECTS



Water Division/Land Resources Management  
Wetlands Bureau

[Check the Status of your Application](#)

RSA/ Rule: RSA 482-A/ Env-Wt 311.10; Env-Wt 313.01(a)(1); Env-Wt 313.03

APPLICANT'S NAME: **North Country Environmental Services, Inc.** TOWN NAME: **Bethlehem**

Attachment A is required for *all minor and major projects*, and must be completed *in addition* to the [Avoidance and Minimization Narrative](#) or [Checklist](#) that is required by Env-Wt 307.11.

For projects involving construction or modification of non-tidal shoreline structures over areas of surface waters having an absence of wetland vegetation, only Sections I.X through I.XV are required to be completed.

**PART I: AVOIDANCE AND MINIMIZATION**

In accordance with Env-Wt 313.03(a), the Department shall not approve any alteration of any jurisdictional area unless the applicant demonstrates that the potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized, as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#).

**SECTION I.I - ALTERNATIVES (Env-Wt 313.03(b)(1))**

Describe how there is no practicable alternative that would have a less adverse impact on the area and environments under the Department's jurisdiction.

SEVERAL ALTERNATIVES WERE EVALUATED INCLUDING A "NO ACTION" ALTERNATIVE, AND MULTIPLE ALTERNATIVES REGARDING THE PROPOSED RESTORATION. THE "NO ACTION" ALTERNATIVE WAS DISCARDED BECAUSE THE PROPOSED RESTORATION IS REQUIRED AS PART OF A SETTLEMENT. THE PROPOSED AESTHETIC RESTORATION WILL REMOVE IRON-STAINED SEDIMENT/SUBSTRATE FROM A GROUNDWATER SEEP, ASSOCIATED STREAM CHANNEL AND ADJACENT WETLAND AREA. A SIMILAR RESTORATION WAS COMPLETED AT THE SITE IN 2010. NCES EVALUATED REPLICATING THE 2010 RESTORATION ALONG THE ENTIRE LENGTH OF THE STREAM AND ADJACENT WETLAND AREA. NCES ALSO EVALUATED A MINIMAL RESTORATION ACROSS THE UPPER AREAS OF THE SEEP WHERE STAINING IS MOST INTENSE AS WELL AS AN INTERMEDIATE APPROACH THAT WOULD FOCUS ON THE AREAS WHERE STAINING WAS MOST EVIDENT AND EXISTING CONDITIONS INCLUDING STAINED SEDIMENT SUFFICIENT FOR REMOVAL. NCES ULTIMATELY DECIDED TO MOVE FORWARD WITH THE INTERMEDIATE APPROACH WHICH COVERS APPROX. 2/3 OF THE STREAM/SEEP AREA BUT WHICH LEAVES THE LOWER PORTIONS CLOSEST TO THE RIVER AND WITH THE LEAST STAINING AND AVAILABLE SEDIMENT FOR REMOVAL UNALTERED; THIS APPROACH BALANCES THE NEED TO REMOVE THE STAINED SEDIMENT WHILE NOT SUBJECTING RELATIVELY UNSTAINED AND STABLE AREAS TO UNNECESSARY DISTURBANCE. NCES ALSO SELECTED VACUUM SUCTION, ACCESS BY FOOT AND TEMPORARY BOARDWALKS AS THESE MEANS OF COMPLETING THE RESTORATION THAT WOULD BE LEAST IMPACTFUL; AS OPPOSED TO MECHANICAL REMOVAL OF STAINED SEDIMENT, PROVIDING ACCESS FOR LARGE EQUIPMENT AND CONSTRUCTING TEMPORARY ROADS/PATHS.

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

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[www.des.nh.gov](http://www.des.nh.gov)

**SECTION I.II - MARSHES (Env-Wt 313.03(b)(2))**

Describe how the project avoids and minimizes impacts to tidal marshes and non-tidal marshes where documented to provide sources of nutrients for finfish, crustacean, shellfish, and wildlife of significant value.

TIDAL AND NON-TIDAL MARSHES ARE NOT PRESENT WITHIN THE PROPOSED PROJECT AREA AND THEREFORE WILL NOT BE IMPACTED.

**SECTION I.III - HYDROLOGIC CONNECTION (Env-Wt 313.03(b)(3))**

Describe how the project maintains hydrologic connections between adjacent wetland or stream systems.

NCES AND PROJECT CONTRACTORS WILL MAINTAIN HYDROLOGIC CONNECTIONS THROUGHOUT THE AESTHETIC RESTORATION AND THE PROJECT WILL NOT RESULT IN ANY CHANGE TO THE WETLAND'S HYDROLOGY POST-CONSTRUCTION. THE DESIGN OF THE RESTORATION INCLUDES PROVISIONS TO TEMPORARILY DIVERT SEEP/STREAM FLOWS FROM THE PORTION OF THE WETLAND/STREAM WHERE THE RESTORATION IS OCCURRING, AND RETURN FLOW WHEN THE VACUUM REMOVAL IS COMPLETED. TURBID WATER WILL BE ALLOWED TO SETTLE IN A TEMPORARY SETTLING BASIN, AND BOTH PERMANENT AND TEMPORARY EROSION CONTROL METHODS WILL BE INSTALLED AND MAINTAINED TO MINIMIZE EROSION. NO PERMANENT STRUCTURES WILL BE LEFT IN THE WETLAND/STREAM AREA AND THERE ARE NOT EXPECTED TO BE ANY LONG-TERM CHANGES TO THE AREAS HYDROLOGY AS A RESULT OF THE PROJECT.



**SECTION I.IV - JURISDICTIONAL IMPACTS (Env-Wt 313.03(b)(4))**

Describe how the project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern, or any combination thereof.

NCES HAS SELECTED THE LEAST IMPACTFUL METHODS AND THE LEAST IMPACTFUL APPROACH TO COMPLETING THE REQUIRED RESTORATION. THE FINAL RESTORATION AREA EXCLUDES THE LOWER PORTION OF THE STREAM CHANNEL AND ASSOCIATED WETLAND AREAS BECAUSE THE STAINING IS LIMITED AND THE RESTORATION WOULD RESULT IN UNNECESSARY IMPACTS TO THIS AREA; THIS REDUCED THE AREA OF TOTAL TEMPORARY DISTURBANCE. COMPLETING THE RESTORATION USING VACUUM REMOVAL OF STAINED SEDIMENT WILL ALLOW FOR FOCUSED AND TARGETED REMOVAL OF THE STAINED SEDIMENT WHILE MINIMIZING IMPACTS TO UNSTAINED AREAS. THE VACUUM WORK WILL BE COMPLETED ON-FOOT/BY-HAND THEREBY ELIMINATING THE NEED FOR MACHINERY OR HEAVY EQUIPMENT TO BE LOCATED AND OPERATED WITHIN THE WETLAND AREA AND FOR ACCESS ROADS/TRAILS TO BE PROVIDED WITHIN THE WETLAND AREAS. ALL OF THE WORK WILL BE TEMPORARY IN NATURE AND THE AFFECTED AREAS WILL BE SEEDED AND RESTORED/STABILIZED WHEN WORK IS COMPLETE; ALL TEMPORARY WATER DIVERSION AND OTHER EQUIPMENT WILL BE REMOVED.

**SECTION I.V - PUBLIC COMMERCE, NAVIGATION, OR RECREATION (Env-Wt 313.03(b)(5))**

Describe how the project avoids and minimizes impacts that eliminate, depreciate or obstruct public commerce, navigation, or recreation.

THE PROJECT IS NOT EXPECTED TO HAVE A NEGATIVE IMPACT ON PUBLIC COMMERCE, NAVIGATION OR RECREATION. THE PROJECT IS ON PRIVATE LAND AND WILL NOT RESTRICT ACCESS TO THE AMMONOOSUC RIVER FOR RECREATION OR NAVIGATION; THE PROPOSED TEMPORARY SEDIMENT CURTAINS WILL NOT RESTRICT ACCESS TO THE RIVER.

**SECTION I.VI - FLOODPLAIN WETLANDS (Env-Wt 313.03(b)(6))**

Describe how the project avoids and minimizes impacts to floodplain wetlands that provide flood storage.

FLOODPLAIN WETLANDS WILL NOT BE IMPACTED AS A RESULT OF THIS PROJECT. THE WETLAND LOCATED AT THE SITE IS A SEEP WETLAND ON A STEEP FORESTED SLOPE THAT DOES NOT PROVIDE FLOOD STORAGE.

**SECTION I.VII - RIVERINE FORESTED WETLAND SYSTEMS AND SCRUB-SHRUB – MARSH COMPLEXES (Env-Wt 313.03(b)(7))**

Describe how the project avoids and minimizes impacts to natural riverine forested wetland systems and scrub-shrub – marsh complexes of high ecological integrity.

THE WETLAND LOCATED AT THE SITE IS NOT A RIVERINE FORESTED WETLAND OR A SCRUB SHRUB - MARSH COMPLEX AND THEREFORE THERE WILL NOT BE ANY EFFECTS AS A RESULT OF THIS PROJECT. THE FORESTED WETLAND AT THE SITE WILL NOT BE PERMANENTLY IMPACTED.

**SECTION I.VIII - DRINKING WATER SUPPLY AND GROUNDWATER AQUIFER LEVELS (Env-Wt 313.03(b)(8))**

Describe how the project avoids and minimizes impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

THE PROJECT WILL NOT HAVE A DETRIMENTAL EFFECT ON DRINKING WATER SUPPLY OR GROUNDWATER AQUIFER LEVELS. THE TEMPORARILY IMPACTED WETLAND IS NOT A GROUNDWATER RECHARGE WETLAND, NOR WILL THERE BE ANY IMPACT TO AQUIFER AREAS AS A RESULT OF THE PROJECT. THE PROJECT WILL IMPLEMENT AND MAINTAIN STRICT EROSION AND SEDIMENT CONTROLS THROUGHOUT THE PROJECT TO PROTECT DOWNSTREAM WATER QUALITY WITHIN THE AMMONOOSUC RIVER; THIS INCLUDES ALLOWING FOR THE TEMPORARY DIVERSION OF SEEP/STREAM FLOWS AROUND THE WORK/RESTORATION AREAS; THE TREATMENT OF ANY TURBID WATERS UTILIZING THE TEMPORARY SEDIMENT SETTLING BASINS; AND THE PROTECTION OF THE AMMONOOSUC RIVER VIA THE DEPLOYMENT OF SEDIMENT CURTAINS/BARRIERS AT THE CONFLUENCE OF THE MAIN SEEP/STREAM WITH THE RIVER. FOLLOWING THE PROJECT, TEMPORARILY DISTURBED AREAS WILL BE RESTORED, SEEDED AND MULCHED TO ALLOW FOR REVEGETATION.

**SECTION I.IX - STREAM CHANNELS (Env-Wt 313.03(b)(9))**

Describe how the project avoids and minimizes adverse impacts to stream channels and the ability of such channels to handle runoff of waters.

THE PROJECT HAS MINIMIZED STREAM CHANNEL IMPACTS WHERE PRACTICABLE; HOWEVER, COMPLETE AVOIDANCE IS NOT POSSIBLE DUE TO THE PRESENCE OF STAINED SEDIMENT WITHIN AND ADJACENT TO STREAM CHANNEL AREAS AT THE SITE. TEMPORARY DEWATERING WILL BE REQUIRED AND ONLY THE AREAS WHERE IRON STAINING IS MOST PREVALENT WILL BE RESTORED; THE LOWER PORTION OF THE SEEP/STREAM WILL NOT BE DIRECTLY IMPACTED. THE HYDROLOGY AT THE SITE IS SUCH THAT THE WETLAND AND STREAM(S) ARE THE REFLECTION OF GROUNDWATER SEEPS, AND DIRECT INPUT OF RUNOFF IS LIMITED; THE PROJECT WILL NOT RESULT IN THE WETLAND OR STREAM BEING LESS ABLE TO HANDLE ANY RUNOFF FROM ADJACENT AREAS.

**SECTION I.X - SHORELINE STRUCTURES - CONSTRUCTION SURFACE AREA (Env-Wt 313.03(c)(1))**

Describe how the project has been designed to use the minimum construction surface area over surface waters necessary to meet the stated purpose of the structures.

THIS PROJECT DOES NOT PROPOSE SHORELINE STRUCTURES, THEREFORE IS NOT APPLICABLE.

**SECTION I.XI - SHORELINE STRUCTURES - LEAST INTRUSIVE UPON PUBLIC TRUST (Env-Wt 313.03(c)(2))**

Describe how the type of construction proposed is the least intrusive upon the public trust that will ensure safe docking on the frontage.

THIS PROJECT DOES NOT PROPOSE SHORELINE STRUCTURES, THEREFORE IS NOT APPLICABLE.

**PART II: FUNCTIONAL ASSESSMENT**

**REQUIREMENTS**

Ensure that project meets the requirements of Env-Wt 311.10 regarding functional assessment (Env-Wt 311.04(j); Env-Wt 311.10).

**FUNCTIONAL ASSESSMENT METHOD USED:**

HIGHWAY METHOD, SEE FUNCTION AND VALUES WORKSHEET AND EXISTING CONDITIONS/WETLAND REPORT FOR ADDITIONAL DETAILS. NH METHOD WAS USED FOR THE ECOLOGICAL INTEGRITY FUNCTION.

NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT: WILLIAM MCCLOY, NHCWS #268

DATE OF ASSESSMENT: 6/23/23

Check this box to confirm that the application includes a NARRATIVE ON FUNCTIONAL ASSESSMENT:



For minor or major projects requiring a standard permit without mitigation, the applicant shall submit a wetland evaluation report that includes completed checklists and information demonstrating the RELATIVE FUNCTIONS AND VALUES OF EACH WETLAND EVALUATED. Check this box to confirm that the application includes this information, if applicable:



Note: The Wetlands Functional Assessment worksheet can be used to compile the information needed to meet functional assessment requirements.



# AVOIDANCE AND MINIMIZATION WRITTEN NARRATIVE

Water Division/Land Resources Management  
Wetlands Bureau

[Check the Status of your Application](#)



RSA/ Rule: RSA 482-A/ Env-Wt 311.04(j); Env-Wt 311.07; Env-Wt 313.01(a)(1)b; Env-Wt 313.01(c)

APPLICANT'S NAME: **North Country Environmental Services, Inc. (NCES)** TOWN NAME: **Bethlehem**

An applicant for a standard permit shall submit with the permit application a written narrative that explains how all impacts to functions and values of all jurisdictional areas have been avoided and minimized to the maximum extent practicable. This attachment can be used to guide the narrative (attach additional pages if needed). Alternatively, the applicant may attach a completed [Avoidance and Minimization Checklist \(NHDES-W-06-050\)](#) to the permit application.

### SECTION 1 - WATER ACCESS STRUCTURES (Env-Wt 311.07(b)(1))

Is the primary purpose of the proposed project to construct a water access structure?

NO.

### SECTION 2 - BUILDABLE LOT (Env-Wt 311.07(b)(1))

Does the proposed project require access through wetlands to reach a buildable lot or portion thereof?

NO.

### SECTION 3 - AVAILABLE PROPERTY (Env-Wt 311.07(b)(2))\*

For any project that proposes permanent impacts of more than one acre, or that proposes permanent impacts to a PRA, or both, are any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, that could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs?

*\*Except as provided in any project-specific criteria and except for NH Department of Transportation projects that qualify for a categorical exclusion under the National Environmental Policy Act.*

NO PRIORITY RESOURCE AREAS (PRA) WILL BE IMPACTED AS PART OF THIS PROJECT. THE PROPOSED RESTORATION IS REQUIRED AS PART OF A SETTLEMENT THAT DICTATES THE AESTHETIC RESTORATION WITHIN THE WETLAND/STREAM/SEEP AREA BE COMPLETED, THEREFORE OPPORTUNITIES FOR COMPLETE AVOIDANCE ARE LIMITED. IMPACTS TO WETLAND FUNCTIONS AND VALUES HAVE BEEN MINIMIZED WHERE POSSIBLE, AND ONLY TEMPORARY IMPACTS TO THE JURISDICTIONAL WETLAND AND STREAM RESOURCES ARE PROPOSED.

**SECTION 4 - ALTERNATIVES (Env-Wt 311.07(b)(3))**

Could alternative designs or techniques, such as different layouts, different construction sequencing, or alternative technologies be used to avoid impacts to jurisdictional areas or their functions and values as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization?](#)

SEVERAL ALTERNATIVES WERE EVALUATED INCLUDING A "NO ACTION" ALTERNATIVE, AND MULTIPLE ALTERNATIVES REGARDING THE PROPOSED RESTORATION. THE "NO ACTION" ALTERNATIVE WAS DISCARDED BECAUSE THE PROPOSED RESTORATION IS REQUIRED AS PART OF A SETTLEMENT. THE PROPOSED AESTHETIC RESTORATION WILL REMOVE IRON-STAINED SEDIMENT/SUBSTRATE FROM A GROUNDWATER SEEP, ASSOCIATED STREAM CHANNEL AND ADJACENT WETLAND AREA. A SIMILAR RESTORATION WAS COMPLETED AT THE SITE IN 2010. NCES EVALUATED REPLICATING THE 2010 RESTORATION ALONG THE ENTIRE LENGTH OF THE STREAM AND ADJACENT WETLAND AREA. NCES ALSO EVALUATED A MINIMAL RESTORATION ACROSS THE UPPER AREAS OF THE SEEP WHERE STAINING IS MOST INTENSE AS WELL AS AN INTERMEDIATE APPROACH THAT WOULD FOCUS ON THE AREAS WHERE STAINING WAS MOST EVIDENT AND EXISTING CONDITIONS INCLUDING STAINED SEDIMENT SUFFICIENT FOR REMOVAL. NCES ULTIMATELY DECIDED TO MOVE FORWARD WITH THE INTERMEDIATE APPROACH WHICH COVERS APPROX. 2/3 OF THE STREAM/SEEP AREA BUT WHICH LEAVES THE LOWER PORTIONS CLOSEST TO THE RIVER AND WITH THE LEAST STAINING AND AVAILABLE SEDIMENT FOR REMOVAL UNALTERED; THIS APPROACH BALANCES THE NEED TO REMOVE THE STAINED SEDIMENT WHILE NOT SUBJECTING RELATIVELY UNSTAINED AND STABLE AREAS TO UNNECESSARY DISTURBANCE. NCES ALSO SELECTED VACUUM SUCTION, ACCESS BY FOOT AND TEMPORARY BOARDWALKS AS THESE MEANS OF COMPLETING THE RESTORATION WOULD BE LEAST IMPACTFUL; AS OPPOSED TO MECHANICAL REMOVAL OF STAINED SEDIMENT, PROVIDING ACCESS FOR LARGE EQUIPMENT AND CONSTRUCTING TEMPORARY ROADS/PATHS.

**SECTION 5 - CONFORMANCE WITH Env-Wt 311.10(c) (Env-Wt 311.07(b)(4))\*\***

How does the project conform to Env-Wt 311.10(c)?

*\*\*Except for projects solely limited to construction or modification of non-tidal shoreline structures only need to complete relevant sections of Attachment A.*

THE FUNCTIONAL ASSESSMENT DETERMINED THAT THE SUBJECT WETLAND, WHERE IMPACTS ARE PROPOSED IS SUITABLE FOR SEVERAL FUNCTIONS/VALUES INCLUDING GROUNDWATER DISCHARGE, FLOODFLOW ALTERATION, SEDIMENT/TOXICANT RETENTION, SEDIMENT/SHORELINE STABILIZATION, AND WILDLIFE HABITAT; WITH THE PRINCIPAL FUNCTION BEING GROUNDWATER DISCHARGE. THE PROJECT WAS DESIGNED TO LIMIT THE AMOUNT OF WETLAND WHERE TEMPORARY IMPACTS ARE PROPOSED, AND THEREBY MINIMIZE THE EFFECTS ON THE SUITABLE/PRINCIPAL FUNCTIONS AND VALUES. POTENTIAL IMPACTS TO FLOODFLOW/SHORELINE STABILIZATION FUNCTIONS WERE MINIMIZED BY AVOIDING THE AMMONOOSUC RIVER AND ASSOCIATED TRIBUTARIES WHERE POSSIBLE; AND HAND OPERATED SUCTION METHODS FOR THE RESTORATION WILL REDUCE THE DISTURBANCE AREA MAINTAINING POTENTIAL WILDLIFE HABITAT AND SEDIMENT RETENTION OPPORTUNITIES. WHILE COMPLETE AVOIDANCE WAS NOT POSSIBLE GIVEN THE NATURE OF THE PROJECT AND THE LOCATION OF THE STAINED SEDIMENT IN WETLAND AND STREAM AREAS, THE PROPOSED MEANS OF PERFORMING THE RESTORATION, THE SEQUENCING OF THE WORK TO LIMIT THE DURATION OF TEMPORARY DIVERSION OF WATER, THE USE OF TEMPORARY BOARD WALKS FOR ACCESS AND THE ATTENTION TO DETAIL REGARDING THE MAINTENANCE OF WATER QUALITY AND EROSION CONTROLS WILL RESULT IN MINIMAL IMPACTS TO FUNCTION AND VALUES AS A RESULT OF THE PROJECT. ALL IMPACTS WILL BE TEMPORARY IN NATURE; THE SITE HAS RECOVERED WELL FROM AN IDENTICAL RESTORATION IN 2010 AND IS EXPECTED TO RECOVER WELL AGAIN.



# WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management  
Wetlands Bureau



[Check the Status of your Application](#)

**RSA/Rule:** RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

**APPLICANT LAST NAME, FIRST NAME, M.I.:** North Country Environmental Services, Inc. (NCES)

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the [Coastal Area Worksheet \(NHDES-W-06-079\)](#) for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the [Avoidance and Minimization Written Narrative \(NHDES-W-06-089\)](#) and the [Avoidance and Minimization Checklist \(NHDES-W-06-050\)](#) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached to the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

<b>SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)</b>	
ADJACENT LAND USE: Forest, Riverine, Forest Road, Landfill, Gravel/Sand Extraction	
CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): <20 feet to trail	
<b>SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)</b>	
CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: William McCloy, NHCWS #268	
DATE(S) OF SITE VISIT(S): 6/23/23	DELINEATION PER ENV-WT 406 COMPLETED? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
CONFIRM THAT THE EVALUATION IS BASED ON: <input checked="" type="checkbox"/> Office and <input checked="" type="checkbox"/> Field examination.	
METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in blank if "other"): <input checked="" type="checkbox"/> USACE Highway Methodology. <input type="checkbox"/> Other scientifically supported method (enter name/ title):	





SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
WETLAND ID: BHW1	LOCATION: (LAT/ LONG) 44.2650715543333/-71.6246952925
WETLAND AREA: 48223 SF	DOMINANT WETLAND SYSTEMS PRESENT: FORESTED
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 6	COWARDIN CLASS: PFO14E
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No if not, where does the wetland lie in the drainage basin? [redacted]	IS THE WETLAND PART OF: <input checked="" type="checkbox"/> A wildlife corridor or <input type="checkbox"/> A habitat island?
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	IS THE WETLAND HUMAN-MADE? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ARE VERNAL POOLS PRESENT? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, complete the Vernal Pool Table)
PROPOSED WETLAND IMPACT TYPE: TEMPORARY	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/DOWNGRADIENT? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	PROPOSED WETLAND IMPACT AREA: [redacted]

**SECTION 4 - WETLANDS FUNCTIONS AND VALUES (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:

1. Ecological Integrity (from RSA 482-A:2, XI)
2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)
3. Fish & Aquatic Life Habitat (from USACE Highway Methodology: Fish & Shellfish Habitat)
4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)
5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)
6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)
7. Nutrient Trapping/Retention & Transformation (from USACE Highway Methodology: Nutrient Removal)
8. Production Export (Nutrient) (from USACE Highway Methodology)
9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)
10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)
11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)
12. Uniqueness/Heritage (from USACE Highway Methodology)
13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)
14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)

First, determine if a wetland is suitable for a particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE *The Highway Methodology Workbook Supplement*. Second, indicate which functions and values are principal ("Principal Function/value?" column). As described in *The Highway Methodology Workbook Supplement*, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SCORE 7.6
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1,2,14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	INCL STREAM, TOO STEEP IN WETLAND FOR FISH
4	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	3,5,9,13,14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	WETLAND TOO STEEP FOR FLOOD STORAGE
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,4,7,10,12,13	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	WETLAND INCLUDES MANY GW SEEPS
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NONE KNOWN OR ID'D
7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	TOO STEEP, SHORT RETENTION TIME DUE TO SLOPE/FLOW
8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LIMITED
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LIMITED, PRIVATE LAND, NO ACCESS
10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,2,4,8 10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LIMITED SOURCES, MAY HAVE HISTORICALLY
11	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2,3,7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	SOME EROSION ALONG AMMONOOSUC RIV, NOT SIGNIF.
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	COMMON WETLAND TYPE
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NO ACCESS, OPPORTUNITY
14	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1,3,6,7,11,17	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Deer sign, bear early season food

**SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)**

Delineations of vernal pools shall be based on the characteristics listed in the definition of "vernal pool" in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3<sup>rd</sup> Ed.*, 2016, published by the New Hampshire Fish and Game Department; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

"Important Notes" are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE "Vernal Pool Assessment" form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	NONE	PRESENT	NO	IMPACTS	
2					
3					
4					
5					

**SECTION 6 - STREAM RESOURCES SUMMARY**

DESCRIPTION OF STREAM: BHS3, R3UB2	STREAM TYPE (ROSGEN): A4/5
HAVE FISHERIES BEEN DOCUMENTED? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	DOES THE STREAM SYSTEM APPEAR STABLE? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: STREAM PRIMARILY RESULT OF GROUNDWATER DISCHARGE

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	8.5 SCORE
2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LIMITED, PRIVATE LAND
3	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	VERY STEEP, NOT LIKELY TO SUPPORT
4	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	TOO STEEP FOR STORAGE
5	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	STREAM IS REFLECTION OF GROUNDWATER DISCHARGE
6	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	NONE KNOWN OR ID'D IN FIELD
7	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LIMITED, TOO STEEP, SHORT RETENTION TIME, FLOWING
8	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LIMITED
9	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PRIVATE LAND, NOT ACCESSIBLE
10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	TOO STEEP
11	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
13	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
14	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	LIMITED IN STREAM ITSELF

**SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)**

- Wildlife and vegetation diversity/abundance list.
- Photograph of wetland.
- Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.
- For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04. Please refer to the [Coastal Area Worksheet \(NHDES-W-06-079\)](#) for more information.

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)



RESTORATION/ENHANCEMENT ACTIVITIES  
PROJECT-SPECIFIC WORKSHEET  
FOR STANDARD APPLICATION



Water Division/Land Resources Management  
Wetlands Bureau

[Check the Status of your Application](#)

RSA/Rule: RSA 482/ Env-Wt 525

APPLICANT LAST NAME, FIRST NAME, M.I.: **North Country Environmental Services, Inc. (NCES)**

This worksheet summarizes the criteria and requirements for a Standard Permit for "Restoration/Enhancement" projects as outlined in Chapter Env-Wt 500. In addition to the project-specific criteria and requirements on this worksheet, all Standard Dredge and Fill Applications must meet the criteria and requirements listed in the [Standard Dredge and Fill Wetlands Permit Application form \(NHDES-W-06-012\)](#).

Please note that the following definitions apply to this worksheet:

- "Restoration/enhancement activity" means a project undertaken to restore or enhance, or both, a wetland, watercourse, or other jurisdictional area.
- "Wood addition" means adding wood as identified in *Practical Guide to Adding Wood to Streams in NH* dated 2018, published by the Natural Resources Conservation Service of the U.S. Department of Agriculture (NRCS), to a watercourse in such a way as to create habitat for aquatic organisms and improve water quality.

<b>SECTION 1 - APPLICABILITY (Env-Wt 525.01)</b>
Do <b>NOT</b> use this worksheet if the project is not <b>solely</b> to restore and/or enhance altered or degraded jurisdictional areas.
<b>SECTION 2 - APPROVAL CRITERIA FOR RESTORATION/ENHANCEMENT ACTIVITIES (Env-Wt 525.02)</b>
An application for a restoration/ enhancement project shall meet all the following approval criteria:
<input checked="" type="checkbox"/> The project shall meet the criteria established in Env-Wt 300.
<input checked="" type="checkbox"/> The project shall meet the design and construction requirements specified in Env-Wt 525.04 (refer to Section 4).
<input checked="" type="checkbox"/> The project shall not include unnatural stream channelization or conversion of wetlands to uplands.
<b>SECTION 3 - APPLICATION REQUIREMENTS FOR RESTORATION/ENHANCEMENT ACTIVITIES (Env-Wt 525.03)</b>
An application for a restoration/enhancement project shall include the following information:
A description of the project goals explaining how the project will achieve restoration/enhancement of desired functions and values in accordance with Env-Wt 805.02(d) and Env-Wt 300.
THE GOAL OF THE PROJECT IS TO COMPLETE AN AESTHETIC RESTORATION OF THE WETLAND, SEEP AND ASSOCIATED STREAMS AS REQUIRED IN A SETTLEMENT BETWEEN NCES AND OTHER PARTIES; A RESTORATION OF THE SAME TYPE WAS COMPLETED AT THE SITE IN 2010. THE PROJECT INVOLVES THE REMOVAL, BY VACUUM SUCTION, OF IRON STAINED SEDIMENT THAT HAS ACCUMULATED SINCE 2010. THE PROJECT INVOLVES TEMPORARY IMPACTS ONLY, AND IS NOT EXPECTED TO NEGATIVELY ALTER THE WETLAND FUNCTIONS AND VALUES. THE AESTHETIC VALUE OF THE WETLAND WILL BE ENHANCED DUE TO THE REMOVAL OF THE IRON STAINED SEDIMENT. THE NEED FOR THE PROJECT IS DRIVEN BY THE REQUIREMENTS OF A SETTLEMENT BETWEEN NCES AND ADDITIONAL PARTIES WHEREFORE THIS ACTIVITY IS REQUIRED TO BE COMPLETED IF APPROVED.

A restoration/enhancement monitoring plan that identifies:

- The metrics by which project success will be measured, and
- A schedule showing anticipated construction phases, timing of plantings, dates of submission of monitoring reports, and a final date of completion.

THE RESTORATION WILL BE MEASURED UPON THE REMOVAL OF THE BRIGHTLY STAINED SEDIMENT BY A VISUAL OBSERVATION OF THE REDUCTION OF IRON STAINED AREAS COMPARED TO PRE-RESTORATION CONDITIONS. THE PROJECT HAS BEEN DESIGNED TO AVOID AND MINIMIZE IMPACTS TO THE PROJECT AREA, AND THE LOWER-MOST PORTIONS OF THE PERENNIAL STREAM AND WETLAND AREA WILL NOT BE RESTORED GIVEN THE LIMITED AMOUNT OF STAINING AND SHALLOW SEDIMENT ACCUMULATION; IT WAS DETERMINED THAT THE TEMPORARY DISTURBANCE ASSOCIATED WITH THE RESTORATION WOULD NOT RESULT IN SUBSTANTIAL IMPROVEMENT TO THE AESTHETICS OF THIS PORTION OF THE WETLAND/STREAM SYSTEM.

DETAILS REGARDING THE PROJECT SEQUENCE, TIMING, AND MONITORING PROPOSAL ARE INCLUDED ON THE PLANS AND ELSEWHERE IN APPLICATION MATERIALS.

A description of stakeholder engagement conducted to assist in determining any potential impacts to upstream and downstream property owners, if any.

AT THIS TIME, NCES HAS PERFORMED OUTREACH TO APPLICABLE REGULATORY AGENCIES AND THE TOWN OF BETHLEHEM, INCLUDING THE CONSERVATION COMMISSION NOTIFYING THEM OF THE PROPOSED PROJECT. NCES HAS ALSO REACHED OUT TO THE AMMONOOSUC RIVER LAC AND WILL PROVIDE A COPY OF THE PERMIT APPLICATION UPON SUBMITTAL. ABUTTERS WILL BE NOTIFIED ACCORDING TO THE REQUIREMENTS OF THE WETLAND RULES AT THE TIME OF APPLICATION SUBMITTAL. THE PROJECT IS NOT EXPECTED TO HAVE ANY EFFECT ON UPSTREAM AND DOWNSTREAM PROPERTY OWNERS GIVEN THE SITE'S LOCATION AWAY FROM RESIDENCES AND ITS SECLUDED LOCATION, ITS LACK OF VISIBILITY FROM OTHER AREAS, LACK OF PROPOSED TREE CUTTING, THE TEMPORARY NATURE OF THE WORK, AND THE EMPHASIS ON CONTROLLING EROSION AND SEDIMENT DURING AND FOLLOWING CONSTRUCTION ACTIVITIES. TO DATE NO COMMENTS HAVE BEEN RECEIVED FROM ABUTTERS.

A description of any on-site features, conditions, or past work that might restrict excavation or access.

AN IDENTICAL AESTHETIC RESTORATION WAS PERFORMED AT THE SITE IN 2010. THE PROPOSED RESTORATION WILL UTILIZE AN EXISTING UPLAND ACCESS ROAD AND WORK AREA DURING THE RESTORATION. THERE ARE NO FEATURES, CONDITIONS OR PAST WORK THAT WILL RESTRICT EXCAVATION OR ACCESS. NO EXCAVATION IN WETLAND AREAS ARE PROPOSED, AND TEMPORARY WORK TO RE-ESTABLISH THE SETTLING BASINS AND TO REMOVE THEM WHEN COMPLETE FROM WITHIN THE WORK AREA WILL OCCUR AND ARE NOT EXPECTED TO HAVE A NEGATIVE IMPACT ON THE SURROUNDING AREA. THE REMOVED IRON STAINED SEDIMENT WILL BE EVALUATED AND DISPOSED OF ACCORDING TO THE APPLICABLE REGULATIONS.

Identification of the source of any hydric soils and plantings to be used.

THE IMPORTATION OF HYDRIC SOILS IS NOT PROPOSED AS PART OF THIS RESTORATION.

A NATIVE, WETLAND RESTORATION SEED MIX WILL BE USED WITHIN WETLAND AREAS FOLLOWING THE RESTORATION ACTIVITIES. SEED MIX USED ON THE PROJECT SHALL BE OF THE WETLAND MIX VARIETY AND SHALL NOT CONTAIN NONNATIVE PLANT SPECIES OR SPECIES THAT ARE STATE THREATENED OR ENDANGERED PLANTS. THE FOLLOWING SEED MIXES ARE ACCEPTABLE FOR USE ON THE PROJECT. ALTERNATE SEED MIXES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING. CONTRACTOR SHALL APPLY USING APPLICATION RATES  
OPTION 1: NEW ENGLAND WETMIX (ORDERED WITHOUT NY IRONWEED):

<https://newp.com/wp-content/uploads/2018/04/WETMIX2018.pdf>

THIS SEED MIX IS ACCEPTABLE PROVIDED THAT NY IRONWEED IS NOT INCLUDED IN THE MIX AS IT IS A NONNATIVE PLANT SPECIES. APPLICATION RATE: 18 LBS PER ACRE

OPTION 2: VT WETLAND PLANT SUPPLY WET MEADOW MIX:

<http://www.vermontwetlandplants.com/vermont-wet-meadow-detention-basin-mix/>

APPLICATION RATE: 35 LBS PER ACRE

For wetland restoration/enhancement projects:

All the information or documents specified in Env-Wt 805.03 (Plans for Wetland Restoration, Enhancement, or Creation Projects) except for Env-Wt 805.03 (h).

For stream restoration/enhancement projects:

The information or documents specified in the applicable provisions of Env-Wt 806.04 (Plans for Stream Restoration and Enhancement Projects) except for Env-Wt 806.04 (j) or

For projects that are limited to wood addition, the information specified in Env-Wt 806.04(b) and (d).

For restoration/enhancement projects that include dam removals:

The information and documents specified in the applicable provisions of Env-Wt 806.04 (Plans for Stream Restoration and Enhancement Projects) except for Env-Wt 806.04 (j).

Plans for the project stamped by a professional engineer.

A sediment report that includes:

- An explanation of the known potential for current and historic sources of sediment contamination from upstream sources, including but not limited to wastewater discharges, hazardous waste sites, and existing and former manufacturing facilities and tanneries,
- An estimate of the volume of sediment that will be removed or potentially become mobile as a result of the project,
- If a dam is to be removed, the estimated volume of impounded sediment that could be transported downstream due to dam removal, and
- A description of the physical characteristics of the impounded sediment, including grain size distribution and organic content.

**SECTION 4 - DESIGN AND CONSTRUCTION REQUIREMENTS FOR RESTORATION/ENHANCEMENT ACTIVITIES (Env-Wt 525.04)**

A restoration/enhancement project shall be designed and constructed as follows:

The project shall meet the design and construction requirements specified in Env-Wt 300.

The project shall be designed and constructed to restore or increase wetland function, stream function, water quality, or other functions of resources within jurisdictional areas.

- The project shall be designed and constructed to create hydrologic conditions, organism passage, or land connections that will support or enhance wetland functions and values of the resources proposed to be restored or enhanced.
- For stream restoration/enhancement projects, the project shall be designed and constructed to meet as many of the goals specified in Env-Wt 806.02(a) as practicable.
- Where applicable, the project shall be designed and constructed to preserve access to the restoration/enhancement areas.
- For wood addition, the project shall be designed and constructed to comply with the "Practical Guide to Adding Wood to Streams in NH" dated 2018, published by the NRCS.

**SECTION 5 - RESTORATION/ENHANCEMENT ACTIVITIES CONSTRUCTION PROJECT CLASSIFICATION (Env-Wt 525.05)**

Refer to Env-Wt 525.05 for restoration/enhancement activities project classification.



In addition to the information provided in the Restoration/Enhancement Project Worksheet (see above) and in the Plans (see Attachment G), some additional comments and details are provided below.

#### Project Timing and Monitoring

It is anticipated that, pending receipt of all required permits and driven in part by the terms of the settlement that applies to this project activity (project need), work will be completed in Summer 2024. The construction sequence is described in detail in the Plans and Attachment J.

NCEP proposes to complete post-construction reviews, to include a review of the impacted areas, photos and written summary of the extent of vegetation seeding revegetation, of the site as follows:

- Review of the site at the end of construction (expected summer or fall 2024)
- Once-per-year, growing season reviews in 2025 and 2026 (or construction completion +1 and +2 if not completed in 2024); reports and photologs and list of any corrective measures to be submitted by 12/31 of the year

#### Hydric Soils and Plantings

The only type of plantings proposed for this project are wetland and upland seeding of temporarily disturbed areas; no trees or shrubs are expected to be impacted and no tree or shrub plantings are proposed. The wetland is currently a forested wetland and will remain a forested wetland after the project. The wetland seed mix, previously approved by NH NHB, are to be either NEW ENGLAND WETMIX<sup>1</sup> (ordered without ironweed) or VT WETLAND PLANT SUPPLY WET MEADOW MIX<sup>2</sup>. These seed mixes will be applied as per the specifications of the manufacturer. It is expected that seeds in the topsoil seedbank will also supplement the applied seed mixes. See links below for a list of the species included in each seed mix. See Attachment G.

Hydric soils will not be imported to support this project; substantial impacts to hydric soils are not anticipated. Soils are expected to contain a seed bank consistent with the native vegetation that's currently growing at the site (see Attachment I). Any disturbed areas will be raked smooth, seeded and mulched with straw.

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<sup>1</sup> <https://newp.com/wp-content/uploads/2018/04/WETMIX2018.pdf>

<sup>2</sup> <http://www.vermontwetlandplants.com/vermont-wet-meadow-detention-basin-mix/>

Hydrology

No permanent changes to hydrology are proposed. Temporary impacts to hydrology will occur during construction but will be short in duration and appropriate erosion and sediment controls will be utilized to protect adjacent areas.

Invasive Species

No invasive species were observed within the project area; therefore, no invasive species control plan has been provided. The project area will be reviewed for the presence of new invasive species during post-construction monitoring visits (see above).

Activities Allowed

No activities are currently allowed within the project area and access is controlled/restricted and NCES does not anticipate a change in use following the project.

## **Attachment E: US Army Corps of Engineers Appendix B Checklist and Required Information**

**NHDES OneStop Impaired Water Map**

**NHDES OneStop Drinking Water and Aquifer/Groundwater Map**

**USFWS IPaC Species List**

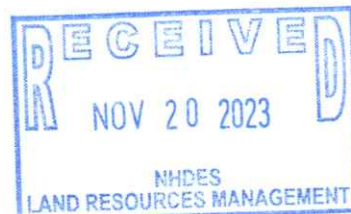
**NHDES WAP Ranked Habitat Map**

**NHDES WPPT FEMA Floodplain Map**

**NHDHR Request for Project Review (RPR) Form**



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**Appendix B  
New Hampshire General Permits  
Required Information and USACE Section 404 Checklist**

**Required Information**

In order for USACE to properly evaluate your application, applicants must submit the following information for all projects along with the NHDES Wetlands Bureau application or permit notification forms. Some projects may require more information. Check with USACE at (978) 318-8832 for project-specific requirements. For your convenience, this Appendix B is also attached to the NHDES Wetlands Bureau application and Permit by Notification forms.

- NHDES Wetlands Permit Application.
- Request for Project Review Form by the NH DHR: <https://www.nh.gov/nhdhr/review/rpr.htm>.
- Photographs of wetland/waterway to be impacted.
- Purpose of the project.
- Legible, reproducible plans no larger than 11"x17" with bar scale. Provide locus map and plan views of the entire property.
- Typical cross-section views of all wetland and waterway fill areas and wetland replication areas.
- In navigable waters, show MLW and MHW elevations. Show the HTL elevations when fill is involved. In other waters, show the OHW elevation.
- On each plan, show the following for the project:
  - Vertical datum and the NAVD 1988 equivalent with the vertical units as U.S. feet. In coastal waters this may be mean higher high water (MHHW), MHW, MLW, mean lower low water (MLLW) or other tidal datum with the vertical units as U.S. feet. MLLW and MHHW are preferred. Provide the correction factor detailing how the vertical datum (e.g., MLLW) was derived using the latest National Tidal Datum Epoch for that area, typically 1983 - 2001.
  - Horizontal state plane coordinates in U.S. survey feet based on the Traverse Mercator Grid system for the State of New Hampshire (Zone 2800) NAD 83.
  - Project limits with existing and proposed conditions.
  - Limits of any FNP in the vicinity of the project area and horizontal State Plane Coordinates in U.S. survey feet for the limits of the proposed work closest to the FNP.
  - Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below the OHW in inland waters and below the HTL in coastal waters.
  - Delineation of all waterways and wetlands on the project site.
- Use Federal delineation methods and include USACE wetland delineation data sheets (GC 2).
- For activities involving discharges of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized, and either a statement describing how impacts to waters of the U.S. are to be compensated for (or a conceptual or detailed mitigation plan) or a statement explaining why compensatory mitigation should not be required for the proposed impacts. Please contact USACE for guidance.



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**USACE Section 404 Checklist**

1. Attach any explanations to this checklist. Lack of information could delay a USACE permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 3 for information on single and complete projects.
4. Contact USACE at (978) 318-8832 with any questions.
5. The information requested below is generally required in the NHDES Wetland Application. See page 61 for NHDES references and Admin Rules as they relate to the information below.

<b>1. Impaired Waters</b>	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See the following to determine if there is an impaired water in the vicinity of your work area. * <a href="https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/">https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/</a> <a href="https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment">https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment</a> <a href="https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx">https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx</a>	X	
<b>2. Wetlands</b>	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to tidal SAS, prime wetlands, or priority resource areas? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at <a href="https://www4.des.state.nh.us/NHB-DataCheck/">https://www4.des.state.nh.us/NHB-DataCheck/</a> .		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?	0 SF	
2.7 What is the area of the proposed fill in wetlands?	0 SF	
2.8 What % of the overall project sire will be previously and proposed filled wetlands?	0%	
<b>3. Wildlife</b>	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: <a href="https://www4.des.state.nh.us/NHB-DataCheck/">https://www4.des.state.nh.us/NHB-DataCheck/</a> . USFWS IPAC website: <a href="https://ipac.ecosphere.fws.gov/">https://ipac.ecosphere.fws.gov/</a>	X	

3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: <ul style="list-style-type: none"> <li>• PDF: <a href="https://wildlife.state.nh.us/wildlife/wap-high-rank.html">https://wildlife.state.nh.us/wildlife/wap-high-rank.html</a>.</li> <li>• Data Mapper: <a href="http://www.granit.unh.edu">www.granit.unh.edu</a>.</li> <li>• GIS: <a href="http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html">www.granit.unh.edu/data/downloadfreedata/category/databycategory.html</a>.</li> </ul>	X	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the GC 31?	X	
<b>4. Flooding/Floodplain Values</b>	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		X
<b>5. Historic/Archaeological Resources</b>		
For a minimum, minor or major impact project - a copy of the RPR Form ( <a href="http://www.nh.gov/nhdhr/review">www.nh.gov/nhdhr/review</a> ) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 37 GC 14(d) of the GP document**	X	
<b>6. Minimal Impact Determination (for projects that exceed 1 acre of permanent impact)</b>	Yes	No
Projects with greater than 1 acre of permanent impact must include the following: <ul style="list-style-type: none"> <li>• Functional assessment for aquatic resources in the project area.</li> <li>• On and off-site alternative analysis.</li> <li>• Provide additional information and description for how the below criteria are met.</li> </ul>	<b>Not Applicable</b>	
6.1 Will there be complete loss of aquatic resources on site?		
6.2 Have the impacts to the aquatic resources been avoided and minimized to the greatest extent practicable?		
6.3 Will all aquatic resource function be lost?		
6.4 Does the aquatic resource (s) have regional significance (watershed or ecoregion)?		
6.5 Is there an on-site alternative with less impact?		
6.6 Is there an off-site alternative with less impact?		
6.7 Will there be a loss to a resource dependent species?		
6.8 Are indirect impacts greater than 1 acre within and adjacent to the project area?		
6.9 Does the proposed mitigation replace aquatic resource function for direct, indirect, and cumulative impacts?		

\*Although this checklist utilizes state information, its submittal to USACE is a federal requirement.

\*\* If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.



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**NHDES Rule Citations**

Appendix B Requirements	NHDES Citation	NHDES Resource, Form & BMP
<b>1. Impaired Waters</b>		
1.1	See Env-Wt 307.03 Protection of Water Quality Required & Env-Wt 306.05 a) 7	<a href="https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/">https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/</a> <a href="https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment">https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment</a> <a href="https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx">https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx</a>
<b>2. Wetlands</b>		
2.1	N/A	N/A
2.2	Env 307.06; Env- Wt 311.01(a)(b) (c)	<a href="#">NH Online Forms System - Coastal Resource Worksheet. Version 2.0</a> <a href="#">Wetlands Permitting: Protected Species and Habitat (nh.gov)</a> <a href="#">Wetlands Permitting: Priority Resource Area (nh.gov)</a> <a href="https://www4.des.state.nh.us/NHB-DataCheck/">https://www4.des.state.nh.us/NHB-DataCheck/</a> .
2.3	Env-Wt 313.03(b)(3); Env-Wt 313.03(b)(4)(7); Env-Wt 307.06	See Chapter 7, Stream & Wetland Crossings: <a href="#">Wetlands Best Management Practice Techniques for Avoidance and Minimiz</a> <a href="#">Wetlands-BMP-Manual-2019.pdf (neiwppcc.org)</a> (& Env-Wt 900 for Stream Crossings)
2.4	Env-Wt 604.02 (Tidal buffer zone); Env-Wt 704 (prime buffers)	
2.5	N/A	N/A
2.6	N/A	N/A
2.7	Env-Wt 311.04(g)	Standard application Section 11- <a href="#">NH Online Forms System - Standard Dredge and Fill Wetlands Permit Application . Version 3.5</a>
2.8	N/A	N/A
<b>3. Wildlife</b>		
3.1	Env-Wt 103.69 "Protected species or habitat"; Env-Wt 307.06, 311.01	NHB DataCheck Tool: <a href="https://www4.des.state.nh.us/NHB-DataCheck/">https://www4.des.state.nh.us/NHB-DataCheck/</a> . <a href="#">Wetlands Permitting: Protected Species and Habitat (nh.gov)</a> <a href="#">Wetlands Permitting: Priority Resource Area (nh.gov)</a>
3.2	Env-Wt 311.02; 313.03(b)(2), (4), (7)(16); Env-Wt 313.03(b)(6) & See Env-Wt 808.19(g), Env-Wt 808.20	<a href="#">Wetlands Permitting: Protected Species and Habitat (nh.gov)</a> <a href="#">Wetlands Permitting: Priority Resource Area (nh.gov)</a>
3.3	N/A	N/A
3.4	NA	N/A
3.5	(Env-Wt 900) <a href="#">Microsoft Word - Env-Wt 900 as of 10-2020.docx (nh.gov)</a>	<a href="#">New Hampshire Stream Crossing Guidelines (nh.gov) (2009 UNH)</a> <a href="#">NH Online Forms System - Wetland Permit Application Stream Crossing Worksheet. Version 1.8</a> <a href="#">Stream Crossing Design (nh.gov) :</a> <a href="https://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/documents/RR_V.9_FINAL_3-14-19.pdf">https://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/documents/RR_V.9_FINAL_3-14-19.pdf</a> Best Management Practices for Routine Roadway Maintenance Activities in New Hampshire. 2019. New Hampshire Department of Transportation.
<b>4. Flooding/Floodplain Values</b>		
4.1	Env-Wt 311.05; Env-Wt 103.66 517.03(b); 517.06(a)(6);	<a href="#">Wetlands Permitting: Priority Resource Area (nh.gov)</a> <a href="#">NH Online Forms System - Coastal Resource Worksheet. Version 2.0</a> <a href="#">New Hampshire Coastal Flood Risk Summary   NH Department of</a>

	527.02(e); 527.04(d); Env-Wt 600 Env-Wt 900	<a href="#">Environmental Services</a> (cited in Env-Wt 603.05) <a href="#">NH Online Forms System - Wetland Permit Application Stream Crossing Worksheet. Version 1.8</a> <a href="#">hydraulic-vulnerability-handout.pdf (nh.gov)</a>
4.2	Env-Wt 527.02 & 527.04 & 313.04 & Env-Wt 800; Wt 605.03 & 605.04	Yes, for permanent impacts to a PRA, impacts from public highway projects, & those projects where flood storage functions are lost when the mitigation threshold is reached. <a href="#">Wetlands Mitigation   NH Department of Environmental Services</a>
<b>5. Historical/Archeological Resources</b>		
5.0	Env-Wt 311.02(f)(6)	
<b>6. Minimal Impact Determination</b>		
6.0	F/V assessment: (Env-Wt 311.10); Env-Wt 603.04 (Coastal Functional Assessment) Alternatives: (Env-Wt 311.07(b)(2))	<a href="#">NH Online Forms System - Wetlands Functional Assessment Worksheet. Version 1.3</a> <a href="#">NH Online Forms System - Coastal Resource Worksheet. Version 2.0</a>
6.1		<a href="#">Wetlands Permitting: Avoidance, Minimization, and Mitigation (nh.gov)</a>
6.2	Env-Wt 102.12 ("Avoidance"), Env-Wt 102.13 ("Avoidance, minimization, mitigation"), Env-Wt 102.14 ("Avoid and minimize"), Env-Wt 311.01, Env-Wt 313.03 ("Avoidance & Minimization") Env-Wt 311.07	See <a href="#">Wetlands Best Management Practice Techniques for Avoidance and Minimization - Wetlands-BMP-Manual-2019.pdf (newpcc.org)</a> referenced in Env-Wt 313.03(a); A/M written narrative ( <a href="#">NH Online Forms System - Avoidance and Minimization Written Narrative. Version 2.0</a> ); Avoidance and Minimization Checklist: <a href="#">NH Online Forms System - Avoidance and Minimization Checklist. Version 3.1</a>
6.3	Env-Wt 311.10, 603.04	See Functional Assessment worksheets above
6.4	Env-Wt 311.02, Env-Wt 312.04, Env-Wt 306.05, 307.06, 311.01	See Protected Species or Habitat (including exemplary natural communities)
6.5	Env-Wt 311.01, Env-Wt 311.07, Env-Wt 311.10 & 313.01 c)1)	See Avoidance & Minimization cites above & BMPs
6.6	(Env-Wt 313.01c) (1) & Env-Wt 311.07(b)(2))	
6.7	Env-Wt 311.10, Env-Wt 103.69, Env-307.06, see Avoidance & minimization cites	<a href="#">NH Online Forms System - Wetlands Functional Assessment Worksheet. Version 1.3</a> ; <a href="#">Wetlands Permitting: Priority Resource Area (nh.gov)</a> <a href="#">NH Online Forms System - Coastal Resource Worksheet. Version 2.0</a>
6.8	Env-Wt 102.05 (Water quality BMPs)	Practices to minimize or prevent direct or indirect discharge of sediment or other pollutants into surface waters and wetlands, listed in Env-Wt 307
6.9	Env-Wt 800	



**Welcome to New Hampshire's Watershed Report Cards built from the 2020/2022, 305(b)/303(d)**

**Each Watershed Report Card covers a single 12-digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;**

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life Integrity, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

**How are the Surface Water Quality Assessment determinations made?**

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2020/2022 [Consolidated Assessment and Listing Methodology \(CALM\)](#).

**Where can I find more advanced mapping resources?**

GIS files are available by assessment cycle at the NHDES [FTP site](#).

**I'd like to see the more raw water quality data?**

The [web mapping tool](#) allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "Data Access Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit.

**How are assessments coded in the report card?**

Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

	Severe	Poor	Likely Bad	No Data	Likely Good	Marginal	Good	
	Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Not Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	Full Support, Good	
<b>CATEGORY</b>	<b>Description</b>							
Category 2	Meets standards					2-M or 2-OBS	2-G	
Category 3	Insufficient Information		3-PNS	3-ND	3-PAS			
Category 4	Does not Meet Standards;							
4A	TMDL* Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL* Needed	5-P	5-M or 5-T					

\* [TMDL](#) stands for Total Maximum Daily Load studies

# Watershed 305(b) Assessment Summary Report:

Assessment Cycle: 2020/2022

HUC 12: 010801030402

HUC 12 Name: Middle Ammonoosuc River

(Locator map on next page only applies to this HUC12)

Good	Meets water quality standards/thresholds by a relatively large margin.
Marginal	Meets water quality standards/thresholds but only marginally.
Likely Good	Limited data available, however, the data that is available suggests that the parameter is Potentially Attaining Standards (PAS).
No Current Data	Insufficient information to make an assessment decision.
Likely Bad	Limited data available, however, the data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.
Poor	Not meeting water quality standards/thresholds. The impairment is marginal.
Severe	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.

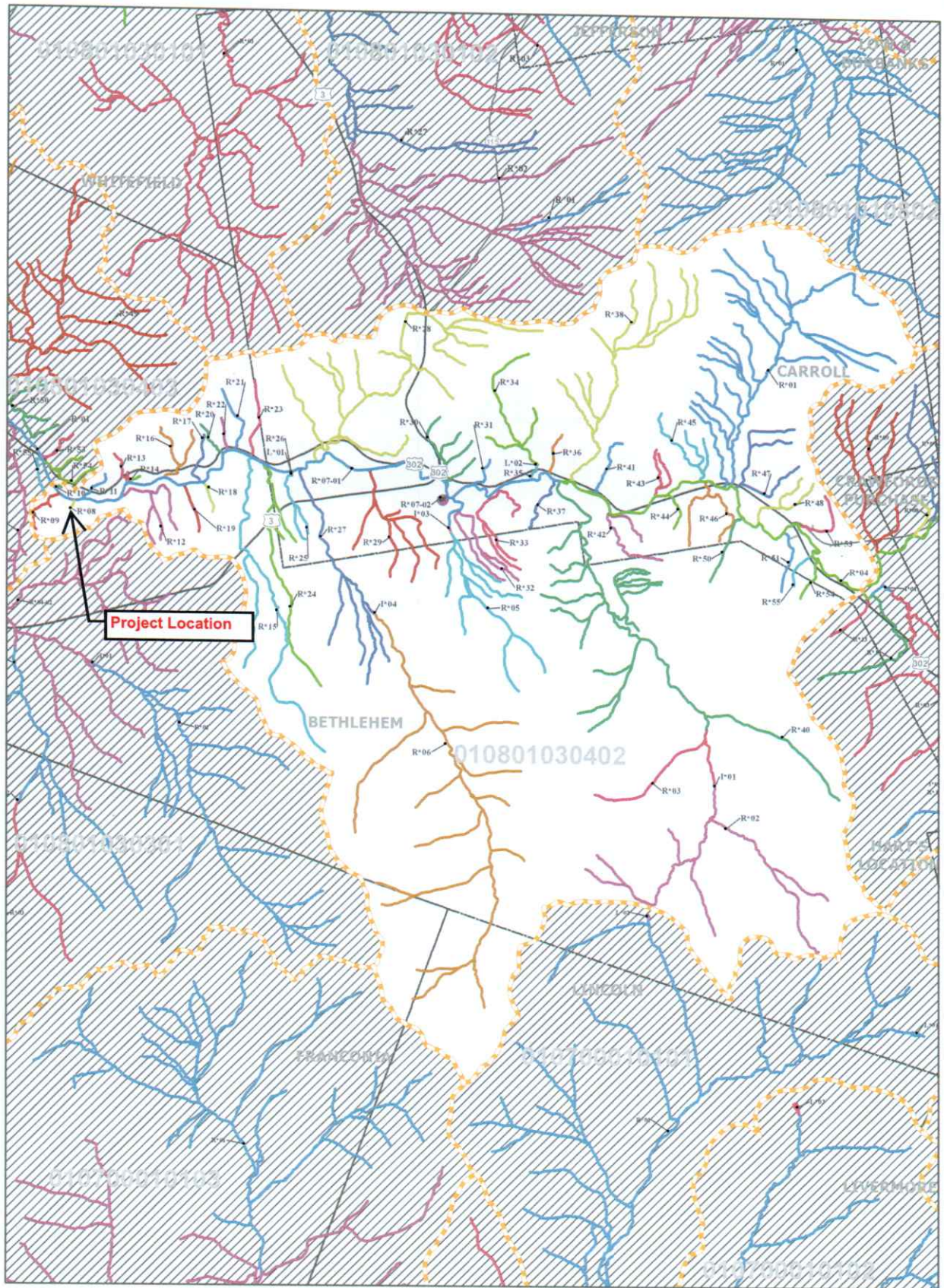


Assessment Unit ID	Map Label	Assessment Unit Name	Aquatic Life	Fish Consump.	Swimming	Boating
NHIMP801030402-01	I*01	Zealand River		4A-M	3-ND	3-ND
NHIMP801030402-03	I*03	Tuttle Brook	3-ND	4A-M	3-ND	3-ND
NHIMP801030402-04	I*04	Little River	3-ND	4A-M	3-ND	3-ND
NHLAK801030402-01	L*01	Unnamed Pond	3-ND	4A-M	3-ND	3-ND
NHLAK801030402-02	L*02	Unnamed Pond	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-01	R*01	Deception Brook - Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-02	R*02	Zealand River - Mount Field Brook - Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-03	R*03	Zealand River - Havie Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-04	R*04	Ammonoosuc River - Unnamed Brook - Crawford Brook - Deception Brook	5-M	4A-M	3-ND	3-ND
NHRIV801030402-05	R*05	Tuttle Brook - Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-06	R*06	Little River - Unnamed Brook	3-ND	4A-M	3-ND	3-ND

NHRIV801030402-07-01	R*07-01	Ammonoosuc River - Zealand River - Tuttle Brook - Unnamed Brook - Haystack Brook	5-M	4A-M	2-G	2-G
NHRIV801030402-07-02	R*07-02	Tuttle Brook - Twin Mtn Rec Area Beach	3-ND	4A-M	4A-P	2-G
NHRIV801030402-08	R*08	Unnamed Brook - Flowing North To Ammonoosuc River From Bethlehem Landfill	4B-P	4A-M	3-ND	3-ND
NHRIV801030402-09	R*09	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-10	R*10	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-11	R*11	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-12	R*12	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-13	R*13	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-14	R*14	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-15	R*15	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-16	R*16	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-17	R*17	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-18	R*18	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-19	R*19	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-20	R*20	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-21	R*21	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-22	R*22	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-23	R*23	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-24	R*24	Haystack Brook - Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-25	R*25	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-26	R*26	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-27	R*27	Little River - Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-28	R*28	Alder Brook - Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-29	R*29	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-30	R*30	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-31	R*31	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-32	R*32	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-33	R*33	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-34	R*34	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-35	R*35	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-36	R*36	Unnamed Brook	3-ND	4A-M	3-ND	3-ND

NHRIV801030402-37	R*37	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-38	R*38	Black Brook - Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-40	R*40	Zealand River - Hale Brook - Unnamed Brook - Mount Tom Brook	3-PAS	4A-M	3-PAS	3-PAS
NHRIV801030402-41	R*41	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-42	R*42	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-43	R*43	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-44	R*44	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-45	R*45	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-46	R*46	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-47	R*47	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-48	R*48	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-50	R*50	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-51	R*51	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-53	R*53	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-54	R*54	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV801030402-55	R*55	Unnamed Brook	3-ND	4A-M	3-ND	3-ND

AUIDs For HUC12: 010801030402 - Middle Ammonoosuc River



**Project Location**

010801030402

	HUC12 Boundaries		Assessment Unit Coloring
	Town Boundaries		AUs Ending with:
	Major Roads	4 -	
	Interstate Highway	5 -	
	US Highway	6 -	
	State Highway	7 -	
		8 -	
		9 -	



Abbrev. Label	HUC 12
L*03	010 700060201
<b>AUID = NH LAK700060201-03</b>	

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.  
 Example: the Label "L\*03" in HUC12 = 010700060201 represents AUID = "NH LAK700060201-03"  
 In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.



Scale: 1:68,060

Assessment Unit ID: NHRIV/801030402-07-01

Size: 8.1190 MILES

2020/2022, 305(b)/303(d) - All

Assessment Unit Name: Ammonoosuc River - Zealand River - Tuttle Brook - Unnamed Brook - Haystack Brook

Assessment Unit Category: 5-M

Reviewed Parameters by Assessment Unit

Beach: N

Town(s) Primary Town is Listed First: Bethlehem, Carroll

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority	
Aquatic Life Integrity	5-M	ALUMINUM	N	2017	2017	3-PNS		
		AMMONIA (TOTAL)	N	1995	N/A	3-ND		
		Benthic-Macroinvertebrate Bioassessments (Streams)	N				3-ND	
		CHLORIDE	N	2019	N/A	3-PAS		
		DISSOLVED OXYGEN SATURATION	N	2019	N/A	3-PAS		
		Fishes Bioassessments (Streams)	N				3-ND	
		IRON	N	1995	N/A	3-ND		
		OXYGEN, DISSOLVED	N	2019	N/A	3-PAS		
		PH	N	2019	2019	5-M	LOW	
		PHOSPHORUS (TOTAL)		1995	NLV	3-ND		
		TURBIDITY	N	2019	N/A	3-PAS		
		MANGANESE	N	1995	N/A	3-ND		
		MERCURY - FISH CONSUMPTION ADVISORY	N			4A-M		
Fish Consumption	4A-M	ESCHERICHIA COLI	N	2019	2019	3-PNS		
Potential Drinking Water Supply	2-G							
<b>Good</b> Meets water quality standards/thresholds by a relatively large margin.	<b>Marginal</b> Meets water quality standards/thresholds but only marginally.	<b>Likely Good</b> Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	<b>No Current Data</b> Insufficient information to make an assessment decision.	<b>Likely Bad</b> Limited data available. The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	<b>Poor</b> Not meeting water quality standards/thresholds. The impairment is marginal.	<b>Severe</b> Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.		

Potential Drinking Water Supply	2-G	FLUORIDE	N	1995	N/A	3-ND	
		IRON	N	1995	N/A	3-ND	
		MANGANESE	N	1995	N/A	3-ND	
		SULFATES	N	1995	N/A	3-ND	
Primary Contact Recreation	2-G	ESCHERICHIA COLI		2019	2015	2-G	
Secondary Contact Recreation	2-G	ESCHERICHIA COLI		2019	N/A	2-G	
Wildlife	3-ND						

<b>Good</b> Meets water quality standards/thresholds by a relatively large margin.	<b>Marginal</b> Meets water quality standards/thresholds but only marginally.	<b>Likely Good</b> Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	<b>No Current Data</b> Insufficient information to make an assessment decision.	<b>Likely Bad</b> Limited data available. The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	<b>Poor</b> Not meeting water quality standards/thresholds. The impairment is marginal.	<b>Severe</b> Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.
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**Assessment Unit ID:** NHRIV801030402-08  
**Assessment Unit Name:** Unnamed Brook -  
 Flowing North To Ammonoosuc River From  
 Bethlehem Landfill

**Size:** 0.1030 MILES  
**Assessment Unit Category:** 4B-P  
**Beach:** N

**2020/2022, 305(b)/303(d) - All  
 Reviewed Parameters by Assessment  
 Unit**

**Town(s) Primary Town is Listed First:** Bethlehem

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority
Aquatic Life Integrity	4B-P	Dissolved oxygen saturation	N			3-ND	
		Iron	N			4B-P	
		Oxygen, Dissolved	N			3-ND	
		pH	N			3-ND	
Fish Consumption	4A-M	MERCURY - FISH CONSUMPTION ADVISORY	N			4A-M	
Potential Drinking Water Supply	2-G						
Primary Contact Recreation	3-ND	Escherichia coli	N			3-ND	
Secondary Contact Recreation	3-ND	Escherichia coli	N			3-ND	
Wildlife	3-ND						

Good	Marginal	Likely Good	No Current Data	Likely Bad	Poor	Severe
Meets water quality standards/thresholds by a relatively large margin.	Meets water quality standards/thresholds but only marginally.	Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	Insufficient information to make an assessment decision.	Limited data available. The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Not meeting water quality standards/thresholds. The impairment is marginal.	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.



Assessment Unit ID: NHRIV801030402-07-01

Size: 8.1190 MILES

2020/2022, 305(b)/303(d) - All

Assessment Unit Name: Ammonoosuc River - Zealand River - Tuttle Brook - Unnamed Brook - Haystack Brook

Assessment Unit Category: 5-M Beach: N

Reviewed Parameters by Assessment Unit

Town(s) Primary Town is Listed First: Bethlehem, Carroll

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority
Aquatic Life Integrity	5-M	ALUMINUM	N	2017	2017	3-PNS	
		AMMONIA (TOTAL)	N	1995	N/A	3-ND	
		Benthic-Macroinvertebrate Bioassessments (Streams)	N			3-ND	
		CHLORIDE	N	2019	N/A	3-PAS	
		DISSOLVED OXYGEN SATURATION	N	2019	N/A	3-PAS	
		Fishes Bioassessments (Streams)	N			3-ND	
		IRON	N	1995	N/A	3-ND	
		OXYGEN, DISSOLVED	N	2019	N/A	3-PAS	
		PH	N	2019	2019	5-M	LOW
		PHOSPHORUS (TOTAL)		1995	NLV	3-ND	
		TURBIDITY	N	2019	N/A	3-PAS	
		MANGANESE	N	1995	N/A	3-ND	
		Fish Consumption	4A-M	MERCURY - FISH CONSUMPTION ADVISORY	N		
Potential Drinking Water Supply	2-G	ESCHERICHIA COLI	N	2019	2019	3-PNS	
<b>Good</b> Meets water quality standards/thresholds by a relatively large margin.	<b>Marginal</b> Meets water quality standards/thresholds but only marginally.	<b>Likely Good</b> Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	<b>No Current Data</b> Insufficient information to make an assessment decision.	<b>Likely Bad</b> Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	<b>Poor</b> Not meeting water quality standards/thresholds. The impairment is marginal.	<b>Severe</b> Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality.	

Potential Drinking Water Supply	2-G	FLUORIDE	N	1995	N/A	3-ND
		IRON	N	1995	N/A	3-ND
		MANGANESE	N	1995	N/A	3-ND
		SULFATES	N	1995	N/A	3-ND
Primary Contact Recreation	2-G	ESCHERICHIA COLI		2019	2015	2-G
Secondary Contact Recreation	2-G	ESCHERICHIA COLI		2019	N/A	2-G
Wildlife	3-ND					

<b>Good</b> Meets water quality standards/thresholds by a relatively large margin.	<b>Marginal</b> Meets water quality standards/thresholds but only marginally.	<b>Likely Good</b> Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	<b>No Current Data</b> Insufficient information to make an assessment decision.	<b>Likely Bad</b> Limited data available. The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	<b>Poor</b> Not meeting water quality standards/thresholds. The impairment is marginal.	<b>Severe</b> Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.
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Assessment Unit ID: NHRIV801030402-08

Size: 0.1030 MILES

2020/2022, 305(b)/303(d) - All

Assessment Unit Name: Unnamed Brook -  
Flowing North To Ammonoosuc River From  
Bethlehem Landfill

Assessment Unit Category: 4B-P  
Beach: N

Reviewed Parameters by Assessment  
Unit

Town(s) Primary Town is Listed First: Bethlehem

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority
Aquatic Life Integrity	4B-P	Dissolved oxygen saturation	N			3-ND	
		Iron	N			4B-P	
		Oxygen, Dissolved	N			3-ND	
		pH	N			3-ND	
Fish Consumption	4A-M	MERCURY - FISH CONSUMPTION ADVISORY	N			4A-M	
Potential Drinking Water Supply	2-G						
Primary Contact Recreation	3-ND	Escherichia coli	N			3-ND	
Secondary Contact Recreation	3-ND	Escherichia coli	N			3-ND	
Wildlife	3-ND						

Good	Marginal	Likely Good	No Current Data	Likely Bad	Poor	Severe
Meets water quality standards/thresholds by a relatively large margin.	Meets water quality standards/thresholds but only marginally.	Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	Insufficient information to make an assessment decision.	Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Not meeting water quality standards/thresholds. The impairment is marginal.	Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality.

# Map by NH GRANIT



## Legend

- Wellhead Protection Area
- Hydrologic Areas of Conc
- GA2 High-Yield Stratified-
- Parcels
- Aquifer Transmissivity
  - Less than 2000 feet sq./day
  - 2000 - 4000 feet sq./day
  - Greater than 4000 feet sq./d

Map Scale  
1: 12,988  
© NH GRANIT, www.granit.unh.edu  
Map Generated: 10/23/2023

Notes

## PROJECT SUMMARY

Project Code: 2023-0082896  
Project Name: NCES Seep Aesthetic Restoration  
Project Type: Management Plans Land Management/Restoration  
Project Description: attached  
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.2652399,-71.62556505257739,14z>



Counties: Grafton County, New Hampshire

# WAP - NCES SEEP



## Legend

- State
- County
- City/Town
- WAP 2020: Highest Ranked Wildlife Habitat
- 1 Highest Ranked Habitat in NH
- 2 Highest Ranked Habitat in Region
- 3 Supporting Landscape

Map Scale  
1: 14,497

© NH GRANIT, www.granit.unh.edu  
Map Generated: 10/16/2023

Notes



**ABUTTER NOTIFICATION  
OF  
WETLANDS PERMIT APPLICATION**

*Via Certified Mail*

November 10, 2023

**Re: NHDES Wetlands Permit Application**

Project's Street Address: Muchmore Road/CCC Road  
Project's Town/City: Bethlehem  
Project's Tax Map/Block/Lot: 419/25/00

Dear Sir or Madam:

This letter is to inform you that a Wetlands Permit Application will soon be submitted to the NH Department of Environmental Services (NHDES) Wetland Bureau for a *Standard Dredge and Fill Wetlands Permit* that would allow North Country Environmental Services, Inc. (NCES) to conduct the Second Seep Restoration Project at an existing groundwater seep/stream and wetland complex to remove iron-stained sediment. The purpose of the project is to remove iron-stained sediment that has accumulated within portions of the wetland and seep/stream complex since the last restoration. An identical aesthetic restoration project at the site was completed in 2010.

All work will be completed by hand and all impacts will be temporary in nature. Disturbed areas will be seeded and mulched. Monitoring is proposed, post-construction. Under state law RSA 482-A:3, I(d)(Env-Wt 311.03(b)(13)), I am required to notify you, via certified mail, about this wetlands permit application which proposes work on a parcel that abuts your property.

Once the permit application is submitted to NHDES, a copy of the permit application, including the plans associated with the proposed project, will be available for public review at the Bethlehem Town Hall at 2155 Main Street in Bethlehem. A copy of the permit application, including the plans associated with the project proposal, can also be reviewed at the NHDES headquarters in Concord by scheduling a file review by calling (603) 271-8808 or emailing: [filereview@des.nh.gov](mailto:filereview@des.nh.gov).

If you have questions, you may contact me at the contact information provided below or provide them directly to NHDES.

Sincerely,



William S McCloy, Agent for NCES  
Normandeau Associates, Inc.  
PO Box 205  
Rutland, VT 05701  
802-861-7038  
wmccloy@normandeau.com



August 1, 2023

Mr. John Gay  
Casella Waste Systems, Inc.  
1855 Vermont Route 15  
Hyde Park, VT 05655

Re: Wetland and Stream Delineation Summary Report  
NCES Seep Site  
581 Trudeau Road, Bethlehem, NH  
Normandeau Project # 24818.000

Dear Joe:

At your request, Normandeau Associates, Inc. (Normandeau) conducted a wetland and stream delineation at the seep project site accessed via the existing landfill facility at 581 Trudeau Road (see Site Location Map in Attachment 1) in Bethlehem, New Hampshire (hereafter, the "site," "seep site" or "study area"). The work was completed on June 23, 2023, to delineate the boundary of an existing wetland and to map the location of streams along with the top of bank (TOB) and ordinary high-water mark (OHWM) associated with the Ammonoosuc River at the 5 acre site. The purpose of the delineation is to document existing conditions and to support the permitting of an aesthetic restoration at the site to remove iron-stained sediment that has accumulated at the site in coordination with local, state and federal regulatory agencies with jurisdiction over the proposed restoration action. This site was previously restored in 2010.

A summary of the site characteristics, methodology, and results of the wetland delineation are provided below.

#### **SITE CHARACTERISTICS AND STUDY AREA**

The study area was reviewed in the field and includes an existing access trail and cleared/graded area associated with the initial restoration action at the site in 2010. These features were established at that time and were stabilized following the last work at the site. The existing access trail begins at an existing gravel road associated with the landfill facility; on some mapping it is called the CCC Road that continues past the site to the east. Downgradient of the road/trail (to the north) is a steep forested slope that descends to the left-bank of the Ammonoosuc River which flows east to west at the northern edge of the site. Limited physical indications of the initial restoration remain as the area was effectively restored and ample time has passed allowing for the establishment of herbaceous vegetation and other understory growth.

The open areas associated with the trail and clearing that were established during the initial restoration include herbaceous vegetation and saplings. Common species observed include blackberry (*Rubus pennsylvanicus*), rough goldenrod (*Solidago rugosa*), common vetch (*Vicia sativa*), evergreen woodfern (*Dryopteris intermedia*) and bedstraws (*Gallium* sp.) along with sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), striped maple (*Acer pennsylvanicum*), birch (*Betula* sp.), and black cherry (*Prunus serotina*) trees and saplings. The upland forested areas downslope of the trail and clearing and outside of the wetland include yellow birch (*Betula alleghaniensis*), sugar maple, balsam fir (*Abies balsamea*), paper birch (*Betula papyrifera*), eastern hemlock (*Tsuga canadensis*), and American beech (*Fagus grandifolia*). The understory includes



hobblebush (*Viburnum lantanoides*), striped maple, starflower (*Lysimachia borealis*), Canada mayflower (*Maianthemum canadense*), evergreen wood fern (*Dryopteris intermedia*), northern oak fern (*Gymnocarpium dryopteris*) and northern wood sorrel (*Oxalis montana*).

No vernal pools or potential vernal pools were identified within the study area.

The Natural Resource Conservation Service (NRCS) has mapped the study area as Monadnock and Hermon soils on 15 to 35 percent slopes (very stony)<sup>1</sup>. Monadnock and Hermon soils are not hydric, although they can contain up to 7-percent Lyme soils, which are hydric.

#### **WETLAND AND STREAM DELINEATION METHODOLOGY**

William McCloy of Normandeau, a New Hampshire Certified Wetland Scientist (NHCWS #268) and Professional Wetland Scientist (PWS), reviewed the site for wetlands and streams. Wetland boundaries were delineated according to the 1987 *Corps of Engineers Wetland Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, which utilize the three-parameter approach (i.e., evaluating the site for the presence of hydric soils, hydrophytic vegetation and wetland hydrology) for identifying wetlands and determining their jurisdictional limits<sup>2,3</sup>. The 1987 Corps Manual and the Regional Supplement describe the methodology that is required for wetland delineations that are subject to review under the NHDES Wetland Rules (Env-Wt 406.01). The wetland boundaries were flagged with pink "Wetland Delineation" flagging. The flags for each wetland are sequentially numbered and remain at the site. Flags were GPS-surveyed at the time of delineation and formally surveyed by Horizons Engineering in early July, 2023. Data from paired U.S. Army Corps of Engineers (USACE) data plots were collected to document representative wetland boundary information.

Streams and drainages were delineated by flagging the centerline of the channel, TOB and OHWM where applicable. Evidence of surface flow, channels, and other observations were used to map the location of streams and drainages. Streams were flagged using blue flagging and the flags for each stream are sequentially numbered and remain at the site.

#### **WETLAND CHARACTERISTICS**

One wetland (BHW1) was delineated within the study area. A map of the delineated wetland and streams is included in Attachment 2. A brief description of the wetland is included below, and representative photos are included in Attachment 3. A pair of USACE data plots for wetland BHW1 are included in Attachment 4 and Highway Methodology Function and Value forms are included in Attachment 5.

##### Wetland BHW1

The wetland is a forested seepage and pit-and-mound wetland located on the steep slope between the road/trail and the Ammonoosuc River. The wetland includes several seepage areas, streams and smaller drainages (see below). One larger upland island was excluded from the wetland (see mapping) and multiple small hummocks are present within the delineated wetland where wetland conditions are prevalent. Some

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<sup>1</sup> U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey

<sup>2</sup> U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiments Station.

<sup>3</sup> U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

portions of the wetland adjacent to the main seep (BHS3) and near BHS5 (see below) have staining outside of the stream drainages; this is most common in the uppermost (southern) portions of the delineated wetland where the iron staining is most prevalent. The wetland is classified as a palustrine, forested wetland with broad-leaved deciduous and evergreen species that is seasonally flooded, saturated (PFO1/4E) according to the 1979 Cowardin wetland classification system<sup>4</sup>. Woody species observed in the wetland include yellow birch, red maple, balsam fir, red spruce (*Picea rubens*) and eastern hemlock; the latter two showing raised root morphology due to shallow water table and/or rocky conditions. Common herbaceous species include eastern rough sedge (*Carex scabrata*), manna grasses (*Glyceria melicaria* and *G. striata*), swamp dewberry (*Rubus hispida*), spotted touch-me-not (*Impatiens capensis*), foamflower (*Tiarella cordifolia*), and spinulose woodfern (*Dryopteris carthusiana*). Soils observed within the wetland were generally saturated and soft/mucky at the surface, especially where seepages were present. The soils were hydric and included a dark, mucky A/O horizon underlain by a depleted, sandy loam B-horizon with redoximorphic features. Hydrology indicators include a shallow water table, shallow/surface saturation, along with sediment deposits, and drainage patterns. The wetland provides groundwater discharge as its principal function; and is suitable for floodflow alteration, sediment/toxicant retention, sediment/shoreline stabilization and wildlife habitat. A USACE wetland data form was completed in this wetland along with a form for the adjacent upland area (see Attachment 4).

### STREAM CHARACTERISTICS

Seven streams and drainages (or portions thereof) were delineated within the study area. All of the streams and drainages, with the exception of the Ammonoosuc River originate within the delineated wetland boundary associated with BHW1. Details are included below and summarized in Table 1.

**Table 1. Summary of delineated streams and drainages**

Stream ID	Stream Name	Stream Classification	Flow Regime	Iron Staining?	Notes
BHS1	Ammonoosuc River	R2UB1	Perennial	None observed	Short portion of the left (descending) bank of the river where it abuts the site
BHS2	Unnamed Trib.	R4SB5	Intermittent	None observed	Small, rocky intermittent stream that flows into BHS3 near confluence with BHS1
BHS3	Main Seep/ Unnamed Trib.	R3UB2	Perennial	Iron staining present	Main seep stream in the wetland; location of proposed restoration
BHS3A	Unnamed Trib.	R4SB3	Intermittent	Limited to none	Small trib./side channel to BHS3, no surface connection at top
BHS4	Unnamed Trib.	R4SB3	Intermittent	None observed	Small trib. to BHS3
BHS5	Unnamed Trib.	R4SB5	Intermittent	Minor/moderate	Small trib. to BHS3
BHS6	Unnamed Trib.	R4SB3	Intermittent	None observed	Small trib. to BHS3A

<sup>4</sup> Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. <http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm> (Version 04DEC1998).

**BHS1 (Ammonoosuc River)**

BHS1 is a portion of the left (descending) bank of the river where it abuts the site. The OHWM and TOB were flagged. The bank area, downstream or west of the confluence of the main seep (BHS3) with the river includes an area where the bank has slumped into the river, likely during a flood event or due to persistent seepage destabilizing the area. In general, the river was clear with cobble, gravel, and boulder substrate. No iron staining was observed.

**BHS2**

BHS2 is a small intermittent (R4SB5) drainage that terminates where BHS3 (main seep) joins the Ammonoosuc River. The drainage averages about 3 feet in width. The drainage is rocky with about 50-percent of the channel present on the surface and 50-percent subsurface flow through cobbles; the substrate where visible was primarily sand and finer material. Banks were very low but stable and flow was low starting at a seep. No iron staining was observed.

**BHS3**

BHS3 is the primary drainage on the site, otherwise known as the main seep. The stream starts at a robust seepage near the top (southern end) of the delineated wetland and flow was moderate throughout the channel. The stream is perennial (R3UB2) with low, generally stable banks and averages about 6 feet in width; although this varies throughout. Some indications of the prior restoration are present; however, time has allowed for the stream to be more naturalized following the removal of the stained sediment. Coarse woody debris, some of which was placed in the stream and some of which has naturally accrued, are present throughout. Iron staining is most prevalent at the top of the channel and decreases in intensity as the channel descends towards the Ammonoosuc River. The depth of sandy and gravel substrate also increases from top of the channel to the bottom, but due to the prior restoration it is more limited than what one might observe at a similar seep channel that has not been restored in the past.

The intensity of iron staining was documented throughout the length of the delineated channel at each stream channel flag using the Munsell soil color book for a more objective measure of the color; the samples from the channel were observed in sunlight for consistency (see Table 2, below). Photos of the channel and a view looking upstream were taken at each flag. In general, the most intense staining starts at flag 16 and continues down to flag 10/11, generally corresponding to the sections of the channel where colors were measured on the 7.5YR page. The channel slope increases below flags 10/11 briefly and again at flag 6. Below flag 6 the channel appears the most natural with a more sandy and gravelly substrate with coarse woody debris.

**Table 2. Observed colors of the channel in BHS3 at each flag listed from top of the channel to bottom**

Flag #	Munsell Color Code	Color Name	Stained Substrate Notes	Comments
17 (top)	2.5Y 3/2	Very dark grayish brown	Sandy	No staining
16	7.5YR 5/8	Strong brown	Finer material	Most intense staining
15.5	7.5YR 5/8	Strong brown	Finer material	Most intense staining
15	7.5YR 5/8	Strong brown	Finer material	Most intense staining
14	7.5YR 5/8	Strong brown	Finer material	Most intense staining
13	7.5YR 5/8	Strong brown	Finer material	Most intense staining
12	7.5YR 5/8	Strong brown	Finer material	Most intense staining
11	7.5YR 5/8 7.5YR 4/6	Strong brown Strong brown	Finer material	More intense staining

Flag #	Munsell Color Code	Color Name	Stained Substrate Notes	Comments
10	10YR 5/6	Yellowish brown	Finer material	Staining present
9	10YR 4/6	Dark yellowish brown	Finer material	Staining present
8	10YR 4/6	Dark yellowish brown	Finer material	Staining present
7	10YR 4/6	Dark yellowish brown	Finer material	Staining present
6	10YR 3/6	Dark yellowish brown	Sandy	Staining present
5	10YR 4/6	Dark yellowish brown	Sandy	Staining present
4	10YR 4/6	Dark yellowish brown	Sandy	Staining present
3	10YR 4/6	Dark yellowish brown	Gravel, sand	Staining present
2	10YR 4/4	Dark yellowish brown	Gravel, sand	Staining present
1 (bottom)	10YR 4/3	Brown	Gravel, sand	Less staining present

BHS3A

BHS3A is an intermittent (R4SB3) side channel to BHS3. In the original delineation, it was mapped as a connected side channel; however, during the delineation there were no signs of recent or persistent surface flow from BHS3 into BHS3A. It is assumed there is some subsurface connection through the coarse gravel and small cobble. The channel averages 3 feet in width and flow was low when the delineation occurred. Limited to no iron staining was observed and this area would not need to be restored; however, signs were observed that suggest this area was restored in 2010.

BHS4

BHS4 is a small intermittent (R4SB3) tributary to BHS3. The channel starts at a seep in a rocky break in slope and averages 4 feet in width. No iron staining was observed.

BHS5

BHS5 is a short intermittent (R4SB5) channel that drains through the wetland into BHS3. The channel starts at a seep below the wetland edge. The channel averages two feet in width. Some iron staining was observed, particularly near BHS3.

BHS6

BHS6 is a very small intermittent channel (R4SB3) that drains into BHS3A. The channel starts at a seep below the wetland edge. The channel averages two feet in width. No iron staining was observed.

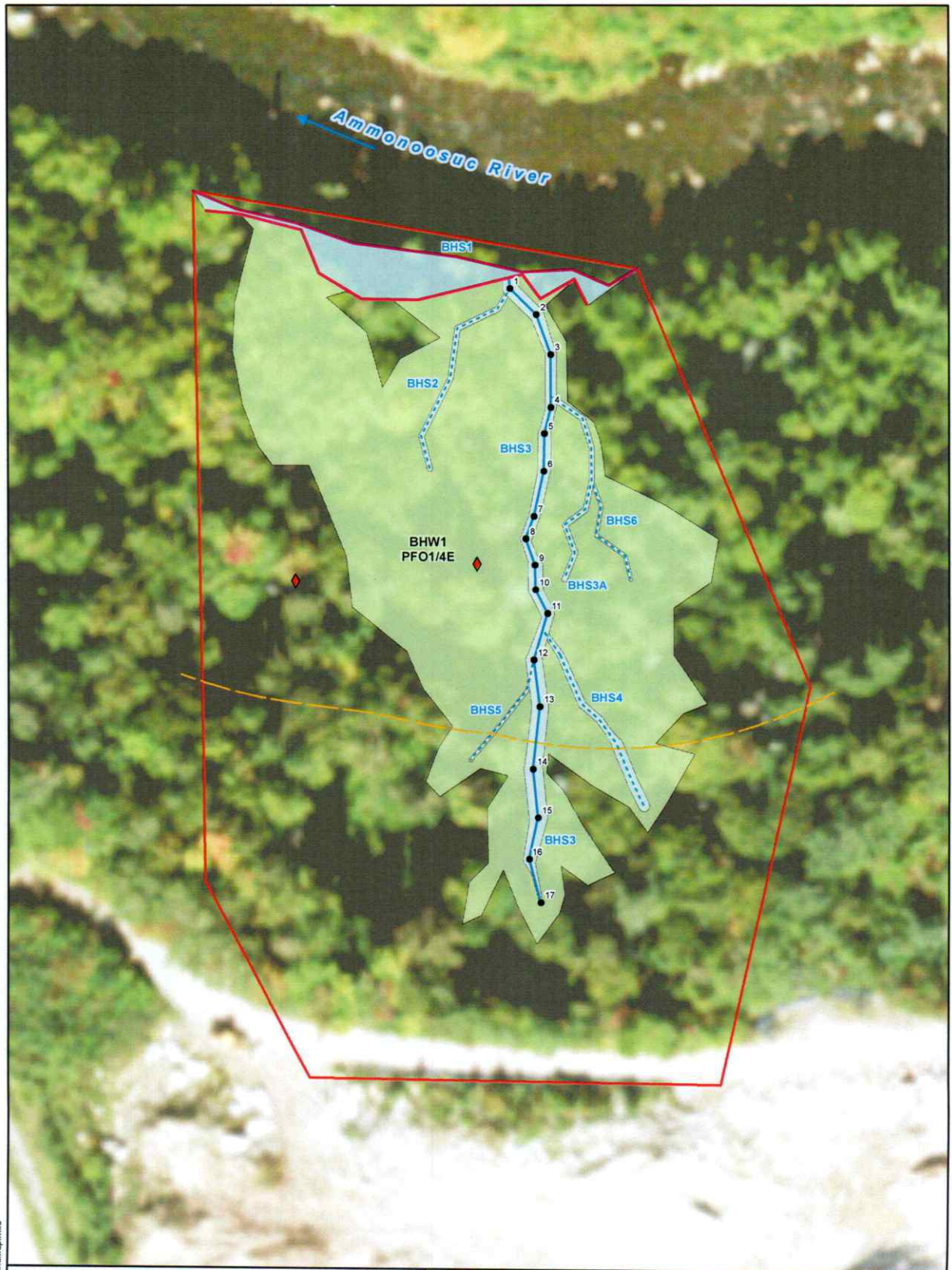
OTHER OBSERVATIONS

No vernal pools or potential vernal pools (due to slope) or conspicuous wildlife or wildlife habitat were observed within the study area. Deer sign (tracks) and small mammals common to western New Hampshire, including squirrel and raccoon tracks, were observed. A fawn was observed across the Ammonoosuc River.

Please let me know if you have any questions or need additional information.

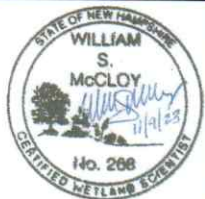
Sincerely,  
NORMANDEAU ASSOCIATES INC.



J:\Projects\Casella\_NCES\MXD\Casella\_NCES\_Seep\_WetlandMap.mxd

- Stream (TOB/OHW)
- Delineated Wetland (2023)
- Perennial Stream
- Intermittent Stream
- Ammonoosuc River (OHW)
- Ammonoosuc River (TOB)
- 250-Ft Shoreland Buffer
- Project Review
- USACE Plot Location (2023)
- BHS3 Flag Point

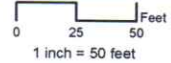


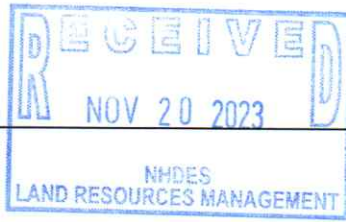
Data sources: NHD, NH GRANIT & ESRI



**North Country Environmental Services, Inc. (NCES)**

**Seep Restoration Wetland & Stream Map**  
Date: 8/1/2023

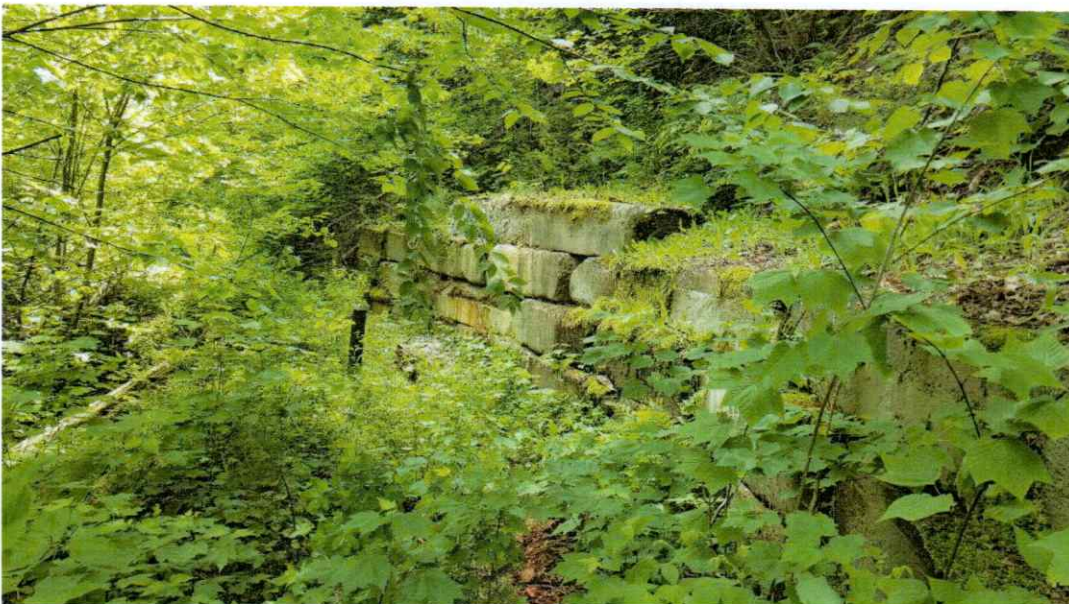




**Photographs**



**Photo 1. Upland forested area west of seep (6/23/23)**



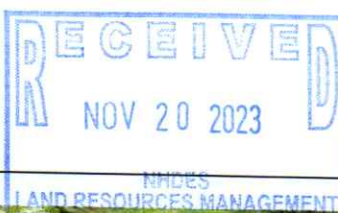
**Photo 2. View of existing access road, retaining wall and monitoring well (6/13/23)**



**Photo 3. Overview of work area where previous settling basin and other staging was located (6/13/23)**



**Photo 4. BHW1 near Ammonoosuc River (F4) (6/23/23)**



**Photo 5. BHW1 along southwestern border (F20) (6/23/23)**



**Photo 6. BHW1 upslope portion where iron staining and groundwater seepage is most prevalent (F23) (6/23/23)**





**Photo 7. BHW1 showing large tip-up and iron staining (F35) (6/23/23)**



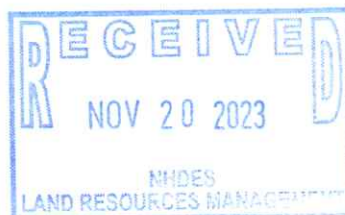
**Photo 8. BHS1 downstream view of Ammonoosuc River (6/23/23)**

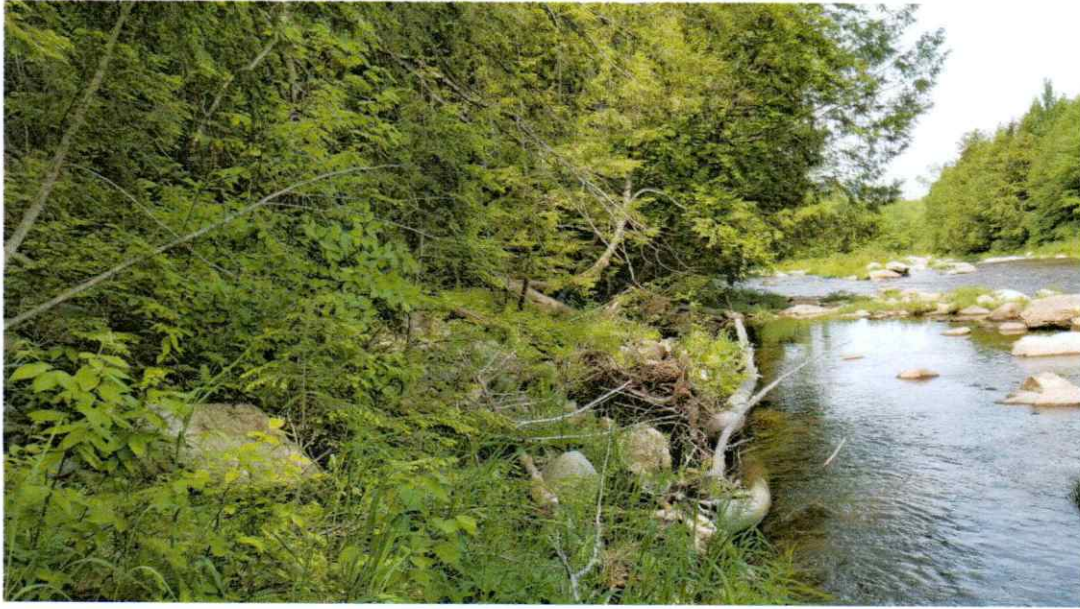


Photo 9. BHS1 upstream view of Ammonoosuc River (6/23/23)



Photo 10. BHS1 Ammonoosuc River at confluence of main seep channel (BHS3) (6/23/23)





**Photo 11. BHS1 bank of Ammonoosuc River (6/23/23)**



**Photo 12. BHS2 intermittent stream looking towards confluence with BHS3 near Ammonoosuc River (BHS3)  
(6/23/23)**



Photo 13. BHS2 intermittent stream looking upstream along small channel (6/23/23)



Photo 14. Photo of BHS3 and Munsell color page used for color characterization (6/23/23)

Series of BHS3 substrate photos, top to bottom



**BHS3 Flag 17 (upper/top) substrate, upstream of iron staining**



**BHS3 Flag 12 substrate**



**BHS3 Flag 15 substrate**



**BHS3 Flag 10 substrate**



**BHS3 Flag 14 substrate**



**BHS3 Flag 9 substrate**



**BHS3 Flag 13 substrate**



**BHS3 Flag 8 substrate**



**BHS3 Flag 7 substrate**



**BHS3 Flag 3 substrate**



**BHS3 Flag 6 substrate**



**BHS3 Flag 2 substrate**



**BHS3 Flag 5 substrate**



**BHS3 Flag 1 substrate**



**BHS3 Flag 4 substrate**



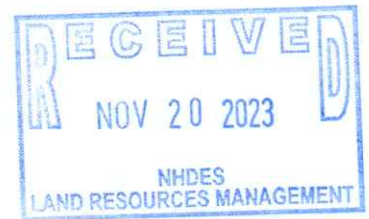
**BHS3 Flag 1 substrate (alt view), near confluence  
w/ Ammonoosuc River**

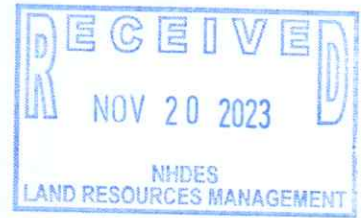


Photo 15. BHS3A Flag 2 (upper) of intermittent side channel to main seep (BHS3) (6/23/23)



Photo 16. BHS3A Flag 6 (mid-channel) of intermittent side channel to main seep (BHS3) (6/23/23)





**Photo 17. BHS3A Flag 7 (lower) of intermittent side channel to main seep (BHS3, top of photo) at confluence (6/23/23)**



**Photo 18. BHS4 Flag 6 (mid-channel) intermittent stream, trib. to main seep (BHS3) (6/23/23)**





**Photo 19. BHS4 (Flag 2) view near the top of the intermittent channel below where channel seeps from rocky slope (6/23/23)**



**Photo 20. BHS4 (Flag 7) view of intermittent channel at confluence with BHS3 (6/23/23)**



Photo 21. BHS5 intermittent stream in dense vegetation, some staining visible under woody and herbaceous vegetation (6/23/23)

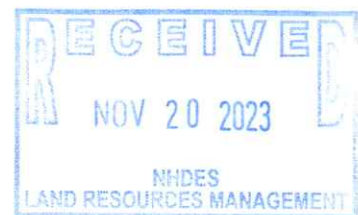


Photo 22. BHS6 (Flag 4) uppermost section of intermittent stream (6/23/23)



**Photo 23. BHS6 (Flag 2) lower section of small intermittent stream (6/23/23)**

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NCES Seep Restoration Project City/County: Bethlehem Sampling Date: 6/23/23  
 Applicant/Owner: NCES State: NH Sampling Point: BHW1Wet  
 Investigator(s): W. McCloy Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope %: 20  
 Subregion (LRR or MLRA): LRR R Lat: 44.2649188° Long: -71.6247833° Datum: WGS 84  
 Soil Map Unit Name: Monadnock and Hermon soils, 25 to 35 percent slopes, very stony NWI classification: PFO1/4E  
 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)  _____  _____	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) <u>X</u> Water-Stained Leaves (B9) <u>X</u> High Water Table (A2)                      _____ Aquatic Fauna (B13) <u>X</u> Saturation (A3)                                  _____ Marl Deposits (B15) _____ Water Marks (B1)                      _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2)              _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3)                      _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4)                  _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5)                      _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> 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)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>2</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  _____  _____	
Remarks:  _____  _____	

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

Sampling Point: BHW1Wet

	Absolute % Cover	Dominant Species?	Indicator Status																	
<b>Tree Stratum</b> (Plot size: <u>30'</u> )				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>10</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
1. <u><i>Picea rubens</i></u>	30	Yes	FACU																	
2. <u><i>Betula alleghaniensis</i></u>	30	Yes	FAC																	
3. <u><i>Tsuga canadensis</i></u>	30	Yes	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	90	=Total Cover																		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15'</u> )				<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>45</u></td> <td>x 2 = <u>90</u></td> </tr> <tr> <td>FAC species <u>70</u></td> <td>x 3 = <u>210</u></td> </tr> <tr> <td>FACU species <u>110</u></td> <td>x 4 = <u>440</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>225</u> (A)</td> <td><u>740</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.29</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>45</u>	x 2 = <u>90</u>	FAC species <u>70</u>	x 3 = <u>210</u>	FACU species <u>110</u>	x 4 = <u>440</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>225</u> (A)	<u>740</u> (B)	Prevalence Index = B/A = <u>3.29</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>45</u>	x 2 = <u>90</u>																			
FAC species <u>70</u>	x 3 = <u>210</u>																			
FACU species <u>110</u>	x 4 = <u>440</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>225</u> (A)	<u>740</u> (B)																			
Prevalence Index = B/A = <u>3.29</u>																				
1. <u><i>Abies balsamea</i></u>	20	Yes	FAC																	
2. <u><i>Acer spicatum</i></u>	20	Yes	FACU																	
3. <u><i>Betula alleghaniensis</i></u>	10	Yes	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	50	=Total Cover																		
<b>Herb Stratum</b> (Plot size: <u>3'</u> )																				
1. <u><i>Rubus hispidus</i></u>	30	Yes	FACW																	
2. <u><i>Maianthemum canadense</i></u>	15	Yes	FACU																	
3. <u><i>Tiarella cordifolia</i></u>	15	Yes	FACU																	
4. <u><i>Impatiens capensis</i></u>	15	Yes	FACW																	
5. <u><i>Abies balsamea</i></u>	10	No	FAC																	
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	85	=Total Cover																		
<b>Woody Vine Stratum</b> (Plot size: _____)																				
1. _____																				
2. _____																				
3. _____																				
4. _____																				
			=Total Cover																	

**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

   4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

   Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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 or equal to 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.)  
 Note that red spruce and eastern hemlock with raised roots due to persistent seeps, soil wetness - so counted as hydrophytes

**SOIL**

Sampling Point BHW1Wet

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 2/2	100					Muck	O/A, mucky
9-14	2.5Y 4/1	90	10YR 4/4	10	C	M	Sandy	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>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)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- 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)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 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)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes X      No \_\_\_\_\_

**Remarks:**

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: NCES Seep Restoration Project City/County: Bethlehem Sampling Date: 6/23/23  
 Applicant/Owner: NCES State: NH Sampling Point: BHW1UP  
 Investigator(s): W. McCloy Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope %: 20  
 Subregion (LRR or MLRA): LRR R Lat: 44.2648931° Long: -71.6251517° Datum: WGS 84  
 Soil Map Unit Name: Monadnock and Hermon soils, 25 to 35 percent slopes, very stony NWI classification: Upland  
 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> 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)
---	--

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
--	--

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

Remarks:

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

Sampling Point: BHW1UP

<u>Tree Stratum</u> (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Tsuga canadensis</i></u>	25	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>16.7%</u> (A/B)																
2. <u><i>Betula alleghaniensis</i></u>	15	No	FAC																	
3. <u><i>Acer saccharum</i></u>	20	Yes	FACU																	
4. <u><i>Picea rubens</i></u>	20	Yes	FACU																	
5. _____																				
6. _____																				
7. _____																				
	80	=Total Cover		<b>Prevalence Index worksheet:</b> <table style="width:100%; border:none;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>95</u></td> <td>x 4 = <u>380</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>135</u></td> <td>(A) <u>500</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>3.70</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>95</u>	x 4 = <u>380</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>135</u>	(A) <u>500</u> (B)	Prevalence Index = B/A = <u>3.70</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>40</u>	x 3 = <u>120</u>																			
FACU species <u>95</u>	x 4 = <u>380</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>135</u>	(A) <u>500</u> (B)																			
Prevalence Index = B/A = <u>3.70</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																
1. <u><i>Acer pensylvanicum</i></u>	20	Yes	FACU																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	20	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Definitions of Vegetation Strata:</b> <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes _____      No <u>X</u>																
<u>Herb Stratum</u> (Plot size: <u>3'</u> )																				
1. <u><i>Dryopteris intermedia</i></u>	20	Yes	FAC																	
2. <u><i>Oxalis montana</i></u>	10	Yes	FACU																	
3. <u><i>Lysimachia borealis</i></u>	5	No	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	35	=Total Cover																		
<u>Woody Vine Stratum</u> (Plot size: _____)				_____ =Total Cover																
1. _____																				
2. _____																				
3. _____																				
4. _____																				

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



**SOIL**

Sampling Point BHW1UP

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 2/2	100					Loamy/Clayey	Sandy Loam, A Horizon
6-16	2.5Y 3/2	100					Sandy	Sandy Loam, B1 Horizon
16-18	2.5Y 4/3	100					Sandy	B2

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>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)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- 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)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 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)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: None  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present?      Yes       No















**Remarks:**

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx))

# Wetland Function- Value Evaluation Form

Wetland ID BHW1  
 Latitude 44.2650715543333 Longitude -71.6246952925  
 Prepared by: wmccloy\_NA Date 06/26/2023  
 Wetland Impact:  
 Type Temp Area TBD  
 Evaluation based on:  
 Office X Field X  
 Corps manual wetland delineation completed? Y X N

Total area of wetland? 48223 SF Human made? No Is wetland part of a wildlife corridor?  or a "habitat island"?   
 Adjacent land use Forest, river, gravel pit, landfill Distance to nearest roadway or other development 20 ft  
 Dominant wetland systems present PFO14E Contiguous undeveloped buffer zone present Yes  
 Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin \_\_\_\_\_  
 How many tributaries contribute to the wetland? 6 Wildlife & vegetation diversity/abundance (see attached list) \_\_\_\_\_

Function/Value	Suitability Y/N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	Y	2,4,7,10,12,13	<input checked="" type="checkbox"/>	
 Floodflow Alteration	Y	3,5,9,13,14	<input type="checkbox"/>	
 Fish and Shellfish Habitat	N	1,2 14	<input type="checkbox"/>	
 Sediment/Toxicant Retention	Y	1,2,4,8 10	<input type="checkbox"/>	
 Nutrient Removal	N		<input type="checkbox"/>	
 Production Export	N	4	<input type="checkbox"/>	
 Sediment/Shoreline Stabilization	Y	2,3,7	<input type="checkbox"/>	Lower portion of wetland along Ammonoosuc River
 Wildlife Habitat	Y	1,3,6,7,11,17	<input type="checkbox"/>	Deer sign, bear early season food
 Recreation	N		<input type="checkbox"/>	
 Educational/Scientific Value	N		<input type="checkbox"/>	
 Uniqueness/Heritage	N		<input type="checkbox"/>	
 Visual Quality/Aesthetics	N		<input type="checkbox"/>	
 Endangered Species Habitat	N		<input type="checkbox"/>	
 Other	no			

\* Refer to backup list of numbered considerations.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	7.6			
2	N		<input type="checkbox"/>	
3	N	1,2 14	<input type="checkbox"/>	
4	Y	3,5,9,13,14	<input type="checkbox"/>	
5	Y	2,4,7,10,12,13	<input checked="" type="checkbox"/>	
6	N		<input type="checkbox"/>	
7	N		<input type="checkbox"/>	
8	N	4	<input type="checkbox"/>	
9	N		<input type="checkbox"/>	
10	Y	1,2,4,8 10	<input type="checkbox"/>	
11	Y	2,3,7	<input type="checkbox"/>	Lower portion of wetland along Ammonoosuc River
12	N		<input type="checkbox"/>	
13	N		<input type="checkbox"/>	
14	Y	1,3,6,7,11,17	<input type="checkbox"/>	Deer sign, bear early season food

Notes:

The following construction sequence is proposed for the project:

1. INSTALL EROSION AND SEDIMENT CONTROLS.
2. PREPARE FORMER WOODS ROAD FROM USFS FR313 TO STAGING/FOREBAY AREA AND PROPOSED STAGING AREA, INCORPORATING APPROPRIATE EROSION CONTROL MEASURES SPECIFIC TO THESE AREAS. CLEARING SHALL NOT BEGIN UNTIL ALL EROSION AND SEDIMENT CONTROL DEVICES HAVE BEEN INSTALLED.
3. CONSTRUCT SETTLING POND AND FOREBAY.
4. CONFIRM PLACEMENT OF GRAVEL BASE MATERIAL (NHDOT ITEM 304.3 OR EQUIVALENT APPROVED BY ENGINEER) IN AREAS OF WOODS ROAD AND PROPOSED STAGING AREA TO ACCOMMODATE LIGHT VEHICLE AND EQUIPMENT TRAFFIC AND MAINTAIN AS NEEDED.
5. DEPLOY EROSION/SEDIMENTATION CONTROL MEASURES IN SEEP RESTORATION WORK AREA.
6. INSTALL AND MAINTAIN TURBIDITY CURTAINS WITH FLOATATION COLLARS AT STREAM OUTLET TO AMMONOOSUC RIVER. SECURE PER MANUFACTURERS RECOMMENDATIONS AND/OR WITH SAND BAGS AND/OR NATIVE RIVER STONE.
7. DEWATERING AND SEDIMENT REMOVAL SHALL OCCUR IN A PHASED, STEP-WISE FASHION TO LIMIT IMPACTS. THE WORK SHALL BEGIN AT THE TOP OF THE SLOPE (AT THE MAIN SEEP) AND CONTINUE DOWNSLOPE, COVERING APPROXIMATELY 50 LINEAR FEET AT A TIME, AT THE DISCRETION OF THE ENGINEER. THE WORK IN THE UPLAND STREAM AREAS SHALL BE COMPLETED AND THE AREA RESTORED PRIOR TO COMMENCING WORK DOWNSTREAM. SEDIMENT REMOVAL IS NOT ANTICIPATED TO BE REQUIRED IN THE APPROXIMATE BOTTOM THIRD OF THE STREAM CHANNEL AS INDICATED ON THE DRAWINGS.
8. INSTALL SAND BAG CHECK DAMS, AS NECESSARY WHERE SHOWN WITHIN STREAM CHANNEL PRIOR TO SEDIMENT EXCAVATION.
9. DE-WATER MAIN SEEP. PUMP WATER TO DE-WATERING TRENCH LOCATED AT LIMITS OF STAGING AREA (SHOWN).
10. REMOVE IRON-STAINED SEDIMENT FROM AREA OF MAIN SEEP AND OTHER AREAS, AS PRACTICAL, BY USE OF SUCTION DREDGE OR OTHER ENGINEER APPROVED MEANS. DREDGE MATERIALS SHALL BE TRANSPORTED TO THE LANDFILL DETENTION AREA FOR DE-WATERING OR SOLIDIFYING WITH SAWDUST. ONCE DE-WATERED OR SOLIDIFIED, THE MATERIAL SHALL BE DISPOSED IN THE NCES LINED LANDFILL.
11. UPON COMPLETION OF SEDIMENT EXCAVATION FROM MAIN SEEP, THE EXISTING NON-WOVEN LINER SHALL BE INSPECTED AND REPLACED AS NEEDED TO FACILITATE FUTURE SEDIMENT GAUGING, IF NECESSARY.
12. SUCTION DREDGE AND EXCAVATION OF SEDIMENT SHALL COMMENCE FROM THE MAIN SEEP DOWNSLOPE TOWARD THE RIVER. SEDIMENT REMOVAL IS NOT ANTICIPATED TO BE REQUIRED IN THE APPROXIMATE BOTTOM THIRD OF THE STREAM CHANNEL AS INDICATED ON THE DRAWINGS.
13. DIVERT STREAM FLOW, WHERE POSSIBLE, USING SAND BAG CHECK DAMS AND LIMITED HAND EXCAVATION IN THE STREAM CHANNEL TO DEWATER SECTIONS OF THE WORK AREA PRIOR TO EXCAVATION.
14. AS NEEDED, AREAS BELOW THE MAIN SEEP SHALL BE EXCAVATED BY USE OF SUCTION

DREDGE AS FEASIBLE, OR MANUALLY USING HAND SHOVELS AND 5-GALLON BUCKETS, OR OTHER ENGINEER APPROVED MEANS. SEDIMENT EXCAVATED VIA SUCTION DREDGE SHALL BE COLLECTED IN THE VACUUM TRUCK AND TRANSPORTED TO THE NCES LANDFILL FOR BULKING AND DISPOSAL. IF SEDIMENT IS MANUALLY REMOVED VIA BUCKETS, ONCE EXCAVATED, WORKERS SHALL TRANSPORT MATERIALS BY USE OF TEMPORARY WOODEN WALKWAYS OR MATS OVER THE WETLAND TO THE VACUUM TRUCK FOR DISPOSAL. CARE SHALL BE TAKEN TO LIMIT IMPACT TO WETLAND VEGETATION AND REVEGETATED/STABILIZED AREAS.

15. RESTORE EXCAVATED AREA TO AS CLOSE TO EXISTING CONDITIONS AS FEASIBLE. PLACE NATIVE WOODY DEBRIS IN STREAM CHANNEL. PLACEMENT SHALL BE APPROXIMATELY 10% OF STREAMBED AREA, AT THE DISCRETION OF THE ENGINEER.

16. UPON COMPLETION OF EXCAVATION AND RESTORATION, REMOVE SILTATION/SEDIMENTATION CONTROLS WITHIN THE WETLAND, RIVER, STREAM CHANNEL AND SEEP. REMOVE THE CURTAIN AND RELATED COMPONENTS FROM THE RIVER IN A MANNER TO LIMIT TURBIDITY.

17. REGRADE THE STAGING AND SETTLING POND AREAS TO MATCH ADJACENT SLOPES, SEED AND MULCH THE CONSTRUCTION STAGING AREA AND HAUL ROAD WITHIN 3 DAYS OF COMPLETION OF WORK. MAINTAIN SILTATION/SEDIMENT CONTROLS (I.E., FILTER LOGS) UNTIL THE SITE IS STABILIZED AND REVEGETATED.

Please refer to project plans, located in Attachment G, for additional details.

**New Hampshire Natural Heritage Bureau  
NHB DataCheck Results Letter**

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**To:** William McCloy, Normandeau Associates  
P.O. Box 205

Rutland, VT 05701

**From:** NH Natural Heritage Bureau

**Date:** 5/9/2023 (valid until 5/9/2024)

**Re:** Review by NH Natural Heritage Bureau of request submitted 5/4/2023

**Permits:** MUNICIPAL POR - Bethlehem, NHDES - Shoreland Standard Permit, NHDES - Wetland Permit by Notification (PBN), NHDES - Wetland Standard Dredge & Fill - Major, NHDES - Wetland Standard Dredge & Fill - Minimum, NHDES - Wetland Standard Dredge & Fill - Minor, USACE - General Permit

**NHB ID:** NHB23-1384

**Applicant:** William McCloy

**Location:** Bethlehem  
581 Trudeau Road

**Project**

**Description:** North Country Environmental Services, Inc. is required by permit condition to complete restoration activities at a seep. The restoration activities will include the removal, by hand or by hand operated suction/vacuum, of iron stained sediment. Impacts to wetlands will be temporary only. No direct impacts in Ammonoosuc River, only silt curtains/erosion controls.

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government.

It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 5/4/2023 11:56:56 AM, and cannot be used for any other project.

Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

New Hampshire Natural Heritage Bureau  
NHB DataCheck Results Letter

MAP OF PROJECT BOUNDARIES FOR: NHB23-1384

NHB23-1384



**Attachment L: A statement of whether the applicant has received comments from the local Board of Selectmen, local Conservation Commission, Local River Advisory Council, or Federal Agencies and, if so, how the applicant has addressed the comments**



NCES submitted a Request for Jurisdiction Determination to the following agencies on the dates indicated:

- US Army Corps of Engineers – May 12, 2023
- NHDES Wetlands Bureau – May 17, 2023
- US Fish and Wildlife Service – submitted through IPaC request on May 17, 2023

NCES also reached out to USEPA on May 15, 2023 via email and the response was that the Jurisdictional Determination is completed by USACE as part of the Federal Permit and is coordinated with EPA.

Sanborn Head submitted Intent to Submit Permit Applications notification emails to the following interested parties on May 26, 2023:

- Bethlehem Conservation Commission
- Bethlehem Village District
- Ammonoosuc River Local Advisory Committee

A pre-application meeting and site visit was held on June 13, 2023 with Stephanie Tetreault and Kurt Yuengling and a second pre-application meeting was held virtually on September 21, 2023 with Kurt Yuengling.

Copies of the permit application will be provided to the Town of Bethlehem and the Ammonoosuc River Local Advisory Committee as required. In addition, abutters will be notified/have been notified via Certified Mail.

Feedback that would result in changes to the project plans or impacts will be provided to the NHDES and Corps of Engineers as needed.