STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: August 30, 2018

FROM: Matt Urban
Chief, Operations Management Section

AT (OFFICE): Department of Transportation

Bureau of Environment

SUBJECT Dredge & Fill Application
Brentwood, 41892

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT District 6 for the subject major impact project. This project is classified as major per Env-Wt 303.02(f). The project is located on North Road in the Town of Brentwood, NH. The proposed work consists of replacing failed twin 36"dia by 40' long CMP's with two 48" dia by 56' long RCP's. The additional length is a result of extending the culverts approximately 7 linear ft. on the inlet and 8 linear ft. on the outlet. Impacts to the prime wetland will be mitigated with proposed plantings in the south east quadrant of the pipes as shown on the plans. The proposed work is the permanent solution to the temporary emergency repairs that were completed under emergency authorization 2018-00791.

This project was reviewed at the Natural Resource Agency Coordination Meeting on July 18, 2018. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Department's website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm

A mitigation narrative has been provided within this application package.

The Department will be requesting an application and plan review with DES upon submission of this application to go over the project and proposed mitigation package to provide an opportunity to address any concerns as early as possible and to aide in the review of this application.

A payment voucher has been processed for this application (Voucher #541108) in the amount of $632.20.

The lead people to contact for this project are Ralph Sanders, Highway Maintenance District 6 (868-1133 or Ralph.Sanders@dot.nh.gov) or Matt Urban, Chief Operation Management Section, Bureau of Environment (271-3226 or matt.urban@dot.nh.gov).

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Chief Operation Management Section, Bureau of Environment.

MRU:mru

BOE Original
Town of Brentwood (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
Carol Henderson, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Mark Kern, US Environmental Protection Agency (via electronic notification)
Michael Hicks, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)
Ralph Sanders, Dist 6 (via electronic notification)

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NHDES-W-06-012

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

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

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No:
			Check No:
			Amount:
			Initials:

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the Determine if Mitigation is Required Frequently Asked Question.

Mitigation Pre-Application Meeting Date: Month: 07 Day: 18 Year: 2018

☐ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: **North Road**		TOWN/CITY: **Brentwood**	
TAX MAP: **N/A**	BLOCK: **N/A**	LOT: **N/A**	UNIT: **N/A**
USGS TOPO MAP WATERBODY NAME: **Dudley Brook** ☐ NA		STREAM WATERSHED SIZE: **1.14 Sq. Mi.** ☐ NA	
LOCATION COORDINATES (If known): **43.01202 -71.04818**		☒ Latitude/Longitude ☐ UTM ☐ State Plane	

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

Replace failed twin 36"dia by 40' long CMP's with two 48" dia by 56' long RCP's. The additional length is a result of extending the culverts approximately 8 ft on each side. Impacts to the Prime wetland will be mitigated with proposed plantings in the south east quadrant of the pipes. The proposed work is the permanent solution to the temprorary emergency repairs that were completed under emergency authorization 2018-00791.

5. SHORELINE FRONTAGE:

☒ NA This does not have shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Web Page.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB 18 - 1027 .

b. ☐ Designated River the project is in ¼ miles of: _____ ; and date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____

☒ N/A

8. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: Brian Schutt

TRUST / COMPANY NAME: NH Dept. of Transportation | MAILING ADDRESS: PO Box 483

TOWN/CITY: Concord | STATE: NH | ZIP CODE: 03302

EMAIL or FAX: matt.urban@dot.nh.gov | PHONE: 271-3226

ELECTRONIC COMMUNICATION: By initialing here: BS, I hereby authorize NHDES to communicate all matters relative to this application electronically.

9. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.: NH Dept. of Transportation

TRUST / COMPANY NAME: NH Dept. of Transportation | MAILING ADDRESS: PO Box 483

TOWN/CITY: Concord | STATE: NH | ZIP CODE: 03302

EMAIL or FAX: matt.urban@dot.nh.gov | PHONE: 271-3226

ELECTRONIC COMMUNICATION: By initialing here MU, I hereby authorize NHDES to communicate all matters relative to this application electronically.

10. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: | COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY | STATE: | ZIP CODE:

EMAIL or FAX: | PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.

11. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
	Brian T. Schutt	8/29 2018

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), 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	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. 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.
4. 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; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, 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.

14. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

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

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland		☐ ATF	551	☐ ATF
Emergent wetland		☐ ATF		☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF		☐ ATF
Perennial Stream / River	218 / 15	☐ ATF	846 / 45	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	173 / 23	☐ ATF	0 / 0	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF	320	☐ ATF
Prime wetland buffer		☐ ATF	1053	☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
Vernal Pool		☐ ATF		☐ ATF
TOTAL	391 / 38		2770 / 45	

15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) **3161** sq. ft. X $0.20 = **$ 632.20**

Temporary (seasonal) docking structure: _____ sq. ft. X $1.00 = $ _____

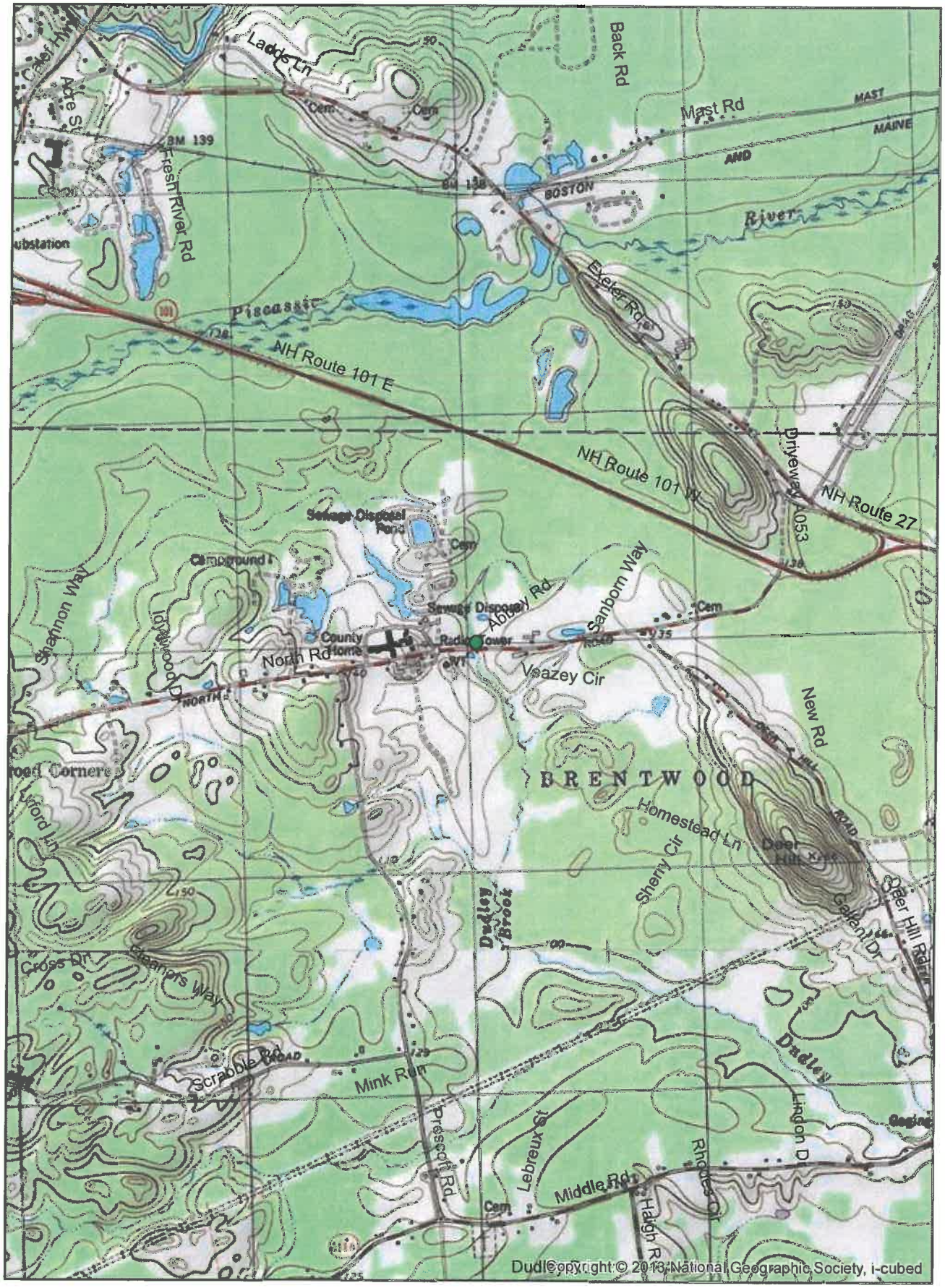
Permanent docking structure: _____ sq. ft. X $2.00 = $ _____

Projects proposing shoreline structures (including docks) add $200 = $ _____

Total = **$ 632.20**

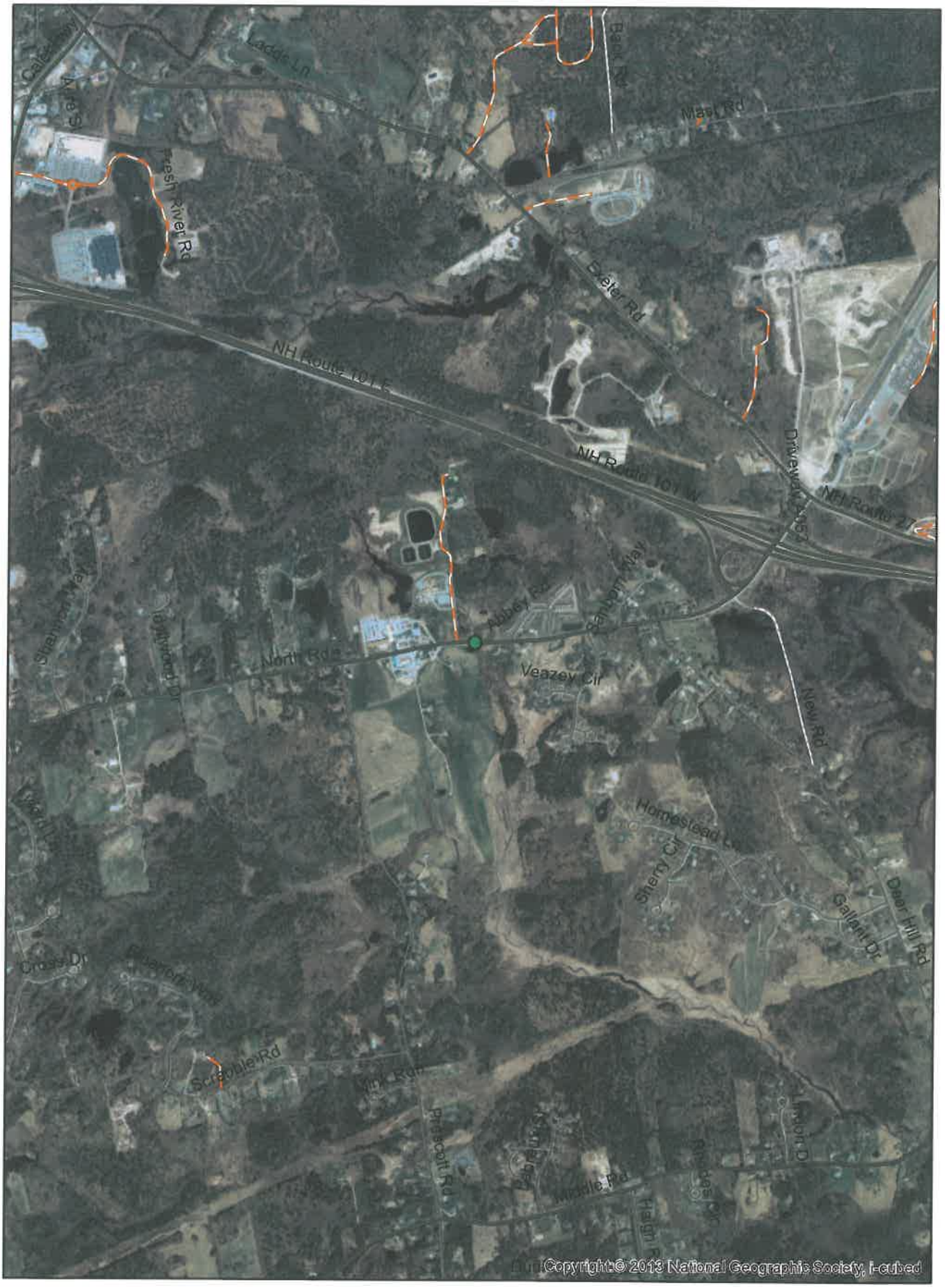
The Application Fee is the above calculated Total or $200, whichever is greater = **$ 632.20**

Brentwood



0 0.25 0.5 1 Miles

Brentwood



0 0.25 0.5 1 Miles

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

EMERGENCY AUTHORIZATION VERIFICATION

File Number: 2018-00791
Owner: NH Dept of Transportation (NHDOT)
Site Location: North Rd, Brentwood Tax map 207 right-of-way
Agent/Contractor: NHDOT, District 6, Ralph Sanders, 271 Main St, Durham, NH 03824 (603) 868-1133
Waterbody: Unnamed Tributary to Dudley Brook

This is to confirm that I have given emergency authorization in accordance with Env-Wt 500 to the owner/agent to conduct the following work in NHDES Wetlands Bureau (NHDES) jurisdiction (under RSA 482-A):

Description: Emergency authorization to dredge accumulated sediment from an unnamed tributary to Dudley Brook and temporarily repair a failed corrugated metal arch culvert and a circular corrugated metal pipe culvert by covering the culverts with a steel plate for safe vehicular passage.

This authorization is subject to the following conditions:

1. The owner shall notify the municipal Conservation Commission and Board of Selectmen prior to the start of work.
2. This form shall be posted at the work site in a location that is visible to the public (to the extent possible).
3. Appropriate siltation and erosion controls shall be utilized.
4. Pre-construction photos and post-construction photos shall be submitted to NHDES within 30 days of the project's completion.
5. No person undertaking any activity shall cause or contribute to, or allow the activity to cause or contribute to, any violations of the surface water quality standards in RSA 485-A and Env-Wq 1700.
6. Extreme precautions shall be taken within riparian areas to prevent unnecessary removal of vegetation during construction. Areas cleared of vegetation must be revegetated with like native species within three days of the completion of the disturbance.
7. All work shall be done from the top of the bank only.
8. Construction equipment shall be inspected daily for leaking fuel, oil, and hydraulic fluid prior to entering surface waters or wetlands or operating in an area where such fluids could reach groundwater, surface waters, or wetlands.
9. The permittee's contractor shall maintain appropriate oil/diesel fuel spill kits on site that are readily accessible at all times during construction, and shall train each operator in the use of the kits.
10. All refueling of equipment shall occur outside of surface waters or wetlands during construction. Machinery shall be staged and refueled in upland areas only.
11. Discharge from dewatering of work areas shall be to sediment basins that are: a) located in uplands; b) lined with hay bales or other acceptable sediment trapping liners; c) set back as far as possible from wetlands and surface waters, with a preferred undisturbed vegetated buffer of at least 50 feet and a minimum undisturbed vegetative buffer of 20 feet.
12. Dredged materials, whether to be stockpiled or disposed of, shall be dewatered in sedimentation basins lined with siltation and erosion controls, and located outside of areas subject to RSA 482-A jurisdiction.

THIS AUTHORIZATION EXPIRES APRIL 2, 2018. All work must be completed by this date. This authorization has been given file number. Please use that number in all future correspondence. This form is valid only if signed below by the NHDES Wetlands Bureau Administrator or his designee.

Signed: **Date: March 26, 2018**
Eben M. Lewis, Wetlands Inspector, Southeast Region Supervisor, NHDES Wetlands Bureau

ec: Ellen Arcieri, Chief, Brentwood Police Dept.
Wayne Robinson, Brentwood Public Works
Jeff Donald, Chair, Brentwood Conservation Commission
Ken Christiansen, Chair, Brentwood Board of Selectmen

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management
Wetlands Bureau

Check the Status of your application: www.des.nh.gov/onestop

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

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

On March 26th 2018, the existing twin 36" metal arch culverts under North Rd. carrying Dudley Brook failed and the road had to be temporarily shut down. An emergency authorization from the Department of Environmental Services (DES) was issued to temporarilly stabilize the site (2018-00791). The proposed project is needed to permanently stabilize and address the failed pipes pipes.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

The Department has evaluated a number of design alternatives that included:

1) 18 ' open span replacement to meet with stream crossing guidelines - this alternative was not selected due to cost, and increased impacts to wetlands that would have been a result of needing to raise the road and widen slopes to accommodate a structure of this size. Due to the prime wetlands on the downstream side it was determined this was not the least impacting alternative.

2) 12' closed bottom box replacement/upgrade - This alternative was not selected for similar reasons above, additionally, there was a constructability concern based on the saturated soils and weight of the structure that the box would unpredictably continue to settle which would result in an countinual sag in the road. For these reasons this alternative was not selected.

3) Replacement in kind (Twin 36") - This alternative was not selected because it was determined that this structure would be able to pass the 50yr storm more adequately and accommodate the 100 yr. storm if it were upsized. To replace in kind would not address the safety concerns and would not be a hydrualic improvement. Therefore, it was not selected.

4) Replacement with Twin 48" RCP's with 8' extensions. - This was the prefered alternative that was chosen is the least impacting allternative that addresses our needs for safety, and improves the hydraulics at this location. Upsizing the pipes will pass the 50 yr. storm and better accommodate the 100 yr. storm. By slightly extending the pipes we are able to improve safety without having to install guardrail. Permanent impacts have been reduced and the Department is including a proposed planting plan to mitigate the impacts to the prime wetland.

3. The type and classification of the wetlands involved.

R2UB2,3 - Riverine, Lower Perennial, Unconsolidated Bottom, Sand/Mud

PSS1E - Paluustrine, Scrub Shrub, Seasonally Flooded/Saturarted

PWET - Prime Wetland

PW100' - Prime Wetland 100' Upland Buffer

Bank- Jurisdictional Bank.

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

The propsoed project is located on Dudley Brook which is surrounded by a large scrub-shrub wetland complex on both sides of the structure. Proposed permanent impacts will occur within the channel and banks of Dudley Brook. All other impacts are temporary and will occur within the surounding PSS1E wetland complex on both sides of the crossing to allow for the construction of the proposed work.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

The crossing on North Road is perpendicular to Dudley brook. The wetland complex on the outlet/south side of the structure has been designated as a prime wetland by the Town of Brentwood in 2007. The Town also has adopted the 100' Prime wetland Buffer that encompasses North Road itself. A portion of the wetland complex and stream on inlet/northern side of the structure is also within the 100' buffer.

6. The surface area of the wetlands that will be impacted.

R2UB2,3 - 218sq ft Perm/ 846 sq ft. Temp

PSS1E - 551 sq ft. Temp

PWET - 320 sq ft. Temp

PW100' - 1053 sq ft. Temp

Bank- 173 sq ft. Temp

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

The propsoed project has been reviewed to determine impacts for the above listed. The following are the determinations that were made:

a) The propsoed project has completed an NHB search in addition to an IPAC search. The results of the NHB determined that based on the proposed work there would be no impact any listed species. The results of the IPAC have identifed the Norther Long Eared Bat and Small Whorled Pagonia. No Critical habitats were located within our project area. There wille be no tree clearing associated with the proposed work, and a review of the project area has determined that the Small Whorled Pagonia is not present at this location.

b) Same as above

c) No species were identified as being at the extremities of their range.

d) The proposed project will not permanently impact any migratory fish or wildlife. The propsed work mat require the temporary diversion of water to facilitate construction. When this was presented at the natural resource agency meeting, no time of year concerns were rasied by NHF&G.

e. No exemplary natural communities were identified by DRED-NHB.

f. No vernal pools were identified or delineated within the project area.

8. The impact of the proposed project on public commerce, navigation and recreation.

The proposed project will require a temporary full road closure. A temporary detour will be signed to help get traffic around the work zone. Upon completion of work traffic will be restored. Dudley brook is not a navigable stream therefore there will be no disruption to recreational traffic on the surface water (i.e. not conducive to canoe or kayak).

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The proposed project will not interfere with the aesthetic interest of the general public. The propsoed work for the most part is not visible to the daily commuting traffic on North Road. The general aesthetic will look much like it does today. As part of the Departments proposed mitigation for the impacts to the prime wetland consist of placing some plantings in the south east quadrant of the structure. This may be viewed as a visual improvement.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The proposed work will not interfere with the the publics rights of passage or access. There will be a temporary roadway closure. Advanced notice of the closure will be provided via a variable message board prior to starting the work. Upon completion of the work traffic will be restored. During construction a signed detour will be in place to help guide traffic around the work zone.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The propsoed work will be completed within existing ROW and construction easement areas. The proposed work has been evaluated hydrualically to determine that there will be no upstream or downstream impacts to abutting property owners as a result of the proposed work.

12. The benefit of a project to the health, safety, and well being of the general public.

The proposed project will address safety concerns at this location. Addressing the failing pipe and replacing it with a structure that is anticipated to last 30-50 years ensures the longterm safety of the traveling public. This project is also addressing the narrow shoulders at the crossing that currently present a risk for any vechicle that may stray off the pavement, by extending the pipes by 8 feet and providing a wide grassed shoulder we are able to eliminate that risk.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

The prospoed project is located on one of the highest known contaminated PFAS surfacewaters/soils in the State. The Department has been coordinating with NHDES Waste Management Division to ensure we meet all the current standards for handling the materials. Our plan is to stockpiling the material in a predetermined area within the County Complex property (original source of contamination) with their permission, to prevent the further spread of contaminants. Our project will implement appropriate BMP before, during, and after construction until the site is stabilized.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

The propsoed project will improve the current hydrualics and prevent the potential for future flooding, erosion, and sedimentation.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

The propsoed work will not reflect or redirect the flow dymanics of Dudley Brook. The angle of the stream as it enters the crossing is straight on and will remain straight on.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

The proposed work is located within the State's ROW and it is unlikely that similar work would be propsoed within this wetlands complex. The southern portion of the wetland complex is a designated prime wetland with higher regularory oversight.

The northern portion of the wetland complex is located on a large undevelop pacel of land that is not easily accessible.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

The wetland that is going to be impacted has been evaluated for it's functions and values as part of the prime wetland designation process. It has been determined that the wetland complex has the following functions present: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention Transformation, Production Export, Sediment/Shoreline Stabilization and Wildlife Habitat. Additionally, the following values were identified: Medium Recreational Value, Medium Educational/Scientific Value and Medium Uniqueness/Heritage Value. In evalutaing the functions and values that were determined in comparision with the proposed impacts/proposed improvements to the structure, it is not anticipated that any of these known functions or values would change as a result of the proposed work.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.
The proposed work is not located in an area that has been identified on the National Register of Natural or Historic Resources.
19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.
The proposed project is not located in any of the above listed values.
20. The degree to which a project redirects water from one watershed to another.
The proposed project does not redirect water from one watershed to another.

Additional comments

NOTES ON CONFERENCE:

June 20, 2018 Natural Resource Agency Meeting Minutes
Finalization of the June Natural Resource Agency Meeting Minutes were discussed. No edits had been provided. The group agreed that since Gino Infascelli was not in attendance they would like Sarah Large to inquire with him. Subsequent to the meeting S.Large reached out to G. Infascelli asking that he review the minutes by Friday July 27th and that if she had not heard back from him by close of business Friday she would finalize the minutes. The minutes have been finalized.

Piermont District 2
Minutes have not been provided to date.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Brentwood, #41892
A summary of the existing conditions and recent pipe failure was provided, namely that two existing 36"CMP culverts collapsed on March 24, 2018 and District replaced the culverts with two 24" HDPE on March 28, 2018 as a temporary fix until a permanent solution could be constructed. All agreed that preservation of the prime wetlands immediately downstream of North Road is required.

Two options for the replacement were presented by Tim Mallette: 1.) Two 56' long 48" diameter RCP culverts replaced at the same location or 2.) Two 50'+ long 48" diameter placed at a skew to avoid impacts to one of the properties on the inlet end of the culverts. The proposed twin 48" RCP culverts will meet the 50 yr. design flood estimate, and this size has a calculated capacity to pass the 100 yr. storm without overtopping the road. The permanent impacts will be kept to the minimum required to construct within the occupied footprint. Tim explained that proper bedding of the culverts will be key for success, and headwalls will not be used due to the bearing capacity of underlying marine silts and clays. Information was requested and needs to be included in the application to explain why the current condition overtops the road, as well as addressing Chapter 900 alternative design requirements. They may provide some shrub plantings to facilitate self-mitigating condition.

Ralph Sanders expressed why the project needs to be completed by the early fall of 2018. The twin 24" HDPE are undersized and a prior 3" rain event caused minor flooding of North Road in the late spring.

Matt Urban requested the permit be expedited so the permit could be issued early October 2018. Lori noted that DOT revise the priority list accordingly.

The natural resource group agreed with moving quickly to have DES approve authorize the permit by early October 2018. The prime wetland procedures need to be reviewed for a relief of the 28 day local hold and DOT will look into this issue.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Warren, #41738 (X-A004(728))
J. Findon-Henry presented a power-point presentation to the group (presentation attached). In summary: The project area (NH 118 in Warren near Breezy Point) experienced significant damage and partial loss of

Brentwood, 41892

Mitigation Narrative

The proposed project requires approximately 320 sq. ft. of impact within the designated prime wetland and 218 sq. ft. of permanent impacts to Dudley Brook which is within the designated prime wetland area on the southern side of our crossing. The Department is proposing to mitigate prime wetland impacts onsite by planting several native plant species adjacent to Dudley Brook on the south east quadrant of the project. Based on field reviews and wetland plant community data that was available in the designated prime wetland file, the Department is proposing to plant a mixture of Speckled Alder, and Silky Dogwood, which will provide additional shading over the brook and restore some wildlife habitat.

Speckled Alder is a large shrub that grows up to 15' tall and grows along stream edges and swamps. It has the ability to fix nitrogen, and clumps of Alder form excellent wildlife cover. Alders are also good for bank stabilization. Alders are very adaptable shrubs and will do will in this project area. The recommended spacing is 10' apart which allows us to fit 5 into or proposed planting area.

Silk Dogwood is a large shrub that grows 6-10' tall. Silky Dogwood is another species that does well in riparian zones. This species provides excellent nesting and cover for birds and also produces berries in the fall eaten by many animals. Based on the recommended spacing we will be able to get 6 Silky Dogwoods within our proposed mitigation planting area.

All plantings shall be completed between the months of April and May and no later than June 1 to ensure the greatest chance of success. Monitoring of the plantings will be completed to ensure atleast 75% success over course of 3 growing seasons.

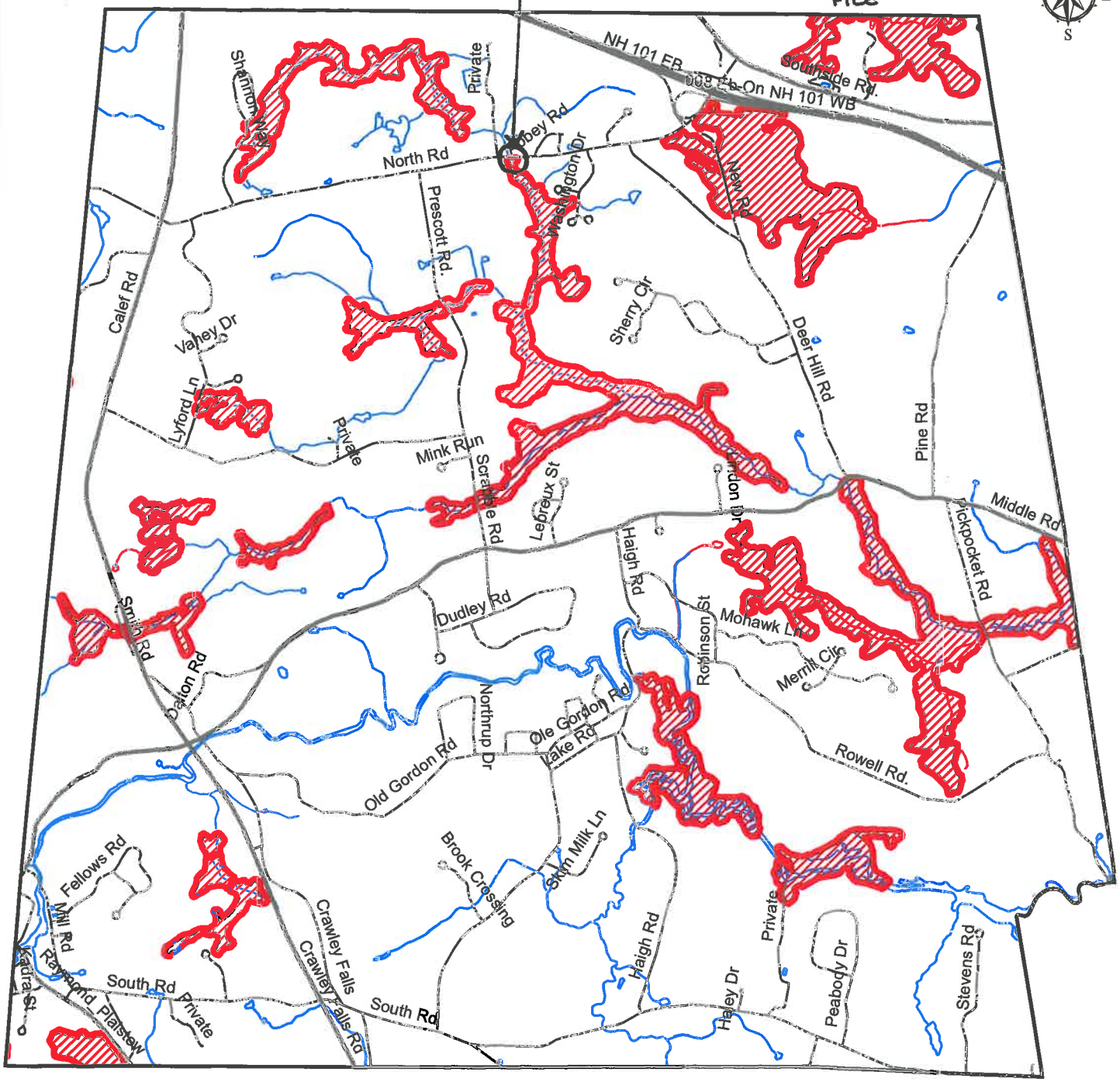
In addition to the proposed mitigation planting plan the Department will need to mitigate for the length of extended pipes on both ends of the crossing. The Department is proposing 7 LF of extended impact on the inlet and 8 LF of extended impact on the outlet. There are no defined banks on the inlet so we will only be calculating mitigation for the wetted channel length on that side. The outlet side defined banks and so we will account for 8 LF bank right, 8 LF channel, 8LF bank left impacts on the downstream side.

This results in a total of 31 LF permanent stream and bank impacts which equates to $7, 678.08 which will be paid in the form of a single and onetime in-lieu fee payment into the ARM-Fund.

NHDES AQUATIC RESOURCE MITIGATION FUND
STREAM PAYMENT CALCULATION

INSERT LINEAR FEET OF IMPACT on BOTH BANKS AND CHANNEL	Right Bank	8.00
	Left Bank	8.0000
	Channel	15.0000
	TOTAL IMPACT	31.0000
	Stream Impact Cost:	$6,398.40
	NHDES Administrative cost:	
		$1,279.68
********* TOTAL ARM FUND STREAM PAYMENT********		
		$7,678.08

41982 Project Location.
Prime WETLAND #3 in Prime WETLAND FILE



Legend

Roads
- Town
- State

Hydrography
- Surface Water

Prime Wetland 100 Foot Buffer
- NO
- YES
- 100 Foot Buffer

Prime Wetlands in Brentwood, NH

New Hampshire State Plane Coordinate System
North American Datum 1983 (feet)

The coverages presented are under constant revision as new sites or facilities are added, and may not contain all potential or existing sites or facilities. These maps were prepared using data supplied by the municipality and the information was digitized to the best of our ability. For prime wetland and prime wetland buffer locations for a specific site, please contact the municipal office where the project is proposed. NHDES is not responsible for the use or interpretation of this information by third parties.

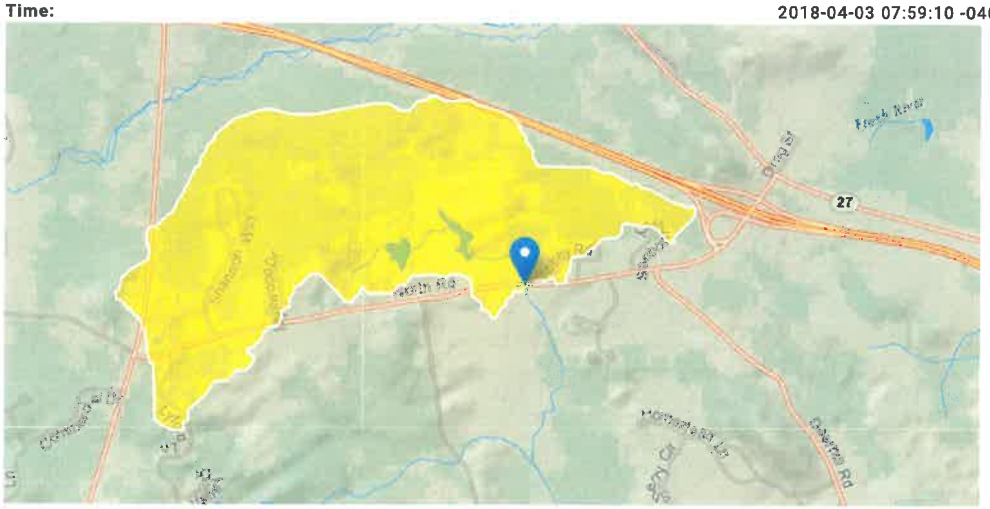
New Hampshire Department of Environmental Services
Wetlands Bureau
29 Hazen Drive
P.O. Box 95
Concord, NH 03302-0095

DATE PRODUCED
October, 2012

1 0.5 0 1 2
Miles

StreamStats Report

Region ID:	NH
Workspace ID:	NH20180403115855942000
Clicked Point (Latitude, Longitude):	43.01202, -71.04818
Time:	2018-04-03 07:59:10 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.14	square miles
CONIF	Percentage of land surface covered by coniferous forest	29.9585	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	8.27	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	2.619	percent
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	17.1329	percent
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	9.3	inches
TEMP	Mean Annual Temperature	46.94	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	62.535	degrees F
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	17.5	inches
ELEVMAX	Maximum basin elevation	205.24	feet
APRAVPRE	Mean April Precipitation	4.198	inches
WETLAND	Percentage of Wetlands	8.6717	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	20.4	feet per mi

Seasonal Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.14	square miles	3.26	689
CONIF	Percent Coniferous Forest	29.9585	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	8.27	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	2.619	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	17.1329	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	9.3	inches	6.83	11.5
TEMP	Mean Annual Temperature	46.94	degrees F	36	48.7

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
TEMP_06_10	Jun to Oct Mean Basinwide Temp	62.535	degrees F	52.9	64.4
PREG_06_10	Jun to Oct Gage Precipitation	17.5	inches	16.5	23.1
ELEVMAX	Maximum Basin Elevation	205.24	feet	260	6290

Seasonal Flow Statistics Disclaimers [Low Flow Statewide]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Seasonal Flow Statistics Flow Report [Low Flow Statewide]

Statistic	Value	Unit
Jan to Mar15 60 Percent Flow	0.652	ft^3/s
Jan to Mar15 70 Percent Flow	0.544	ft^3/s
Jan to Mar15 80 Percent Flow	0.476	ft^3/s
Jan to Mar15 90 Percent Flow	0.359	ft^3/s
Jan to Mar15 95 Percent Flow	0.287	ft^3/s
Jan to Mar15 98 Percent Flow	0.241	ft^3/s
Jan to Mar15 7 Day 2 Year Low Flow	0.482	ft^3/s
Jan to Mar15 7 Day 10 Year Low Flow	0.259	ft^3/s
Mar16 to May 60 Percent Flow	1.55	ft^3/s
Mar16 to May 70 Percent Flow	1.27	ft^3/s
Mar16 to May 80 Percent Flow	1.08	ft^3/s
Mar16 to May 90 Percent Flow	0.87	ft^3/s
Mar16 to May 95 Percent Flow	0.707	ft^3/s
Mar16 to May 98 Percent Flow	0.512	ft^3/s
Mar16 to May 7 Day 2 Year Low Flow	0.705	ft^3/s
Mar16 to May 7 Day 10 Year Low Flow	0.378	ft^3/s
Jun to Oct 60 Percent Flow	0.0841	ft^3/s
Jun to Oct 70 Percent Flow	0.057	ft^3/s
Jun to Oct 80 Percent Flow	0.0452	ft^3/s
Jun to Oct 90 Percent Flow	0.0253	ft^3/s
Jun to Oct 95 Percent Flow	0.0156	ft^3/s
Jun to Oct 98 Percent Flow	0.0125	ft^3/s
Jun to Oct 7 Day 2 Year Low Flow	0.031	ft^3/s
Jun to Oct 7 Day 10 Year Low Flow	0.00796	ft^3/s
Nov to Dec 60 Percent Flow	0.661	ft^3/s
Nov to Dec 70 Percent Flow	0.421	ft^3/s
Nov to Dec 80 Percent Flow	0.253	ft^3/s
Nov to Dec 90 Percent Flow	0.128	ft^3/s
Nov to Dec 95 Percent Flow	0.0659	ft^3/s
Nov to Dec 98 Percent Flow	0.0308	ft^3/s
Oct to Nov 7 Day 2 Year Low Flow	0.269	ft^3/s
Oct to Nov 7 Day 10 Year Low Flow	0.0594	ft^3/s

Seasonal Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (http://pubs.water.usgs.gov/wrir02-4298)

Low-Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.14	square miles	3.26	689
TEMP	Mean Annual Temperature	46.94	degrees F	36	48.7
PREG_06_10	Jun to Oct Gage Precipitation	17.5	inches	16.5	23.1

Low-Flow Statistics Disclaimers [Low Flow Statewide]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow Statewide]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0298	ft^3/s
7 Day 10 Year Low Flow	0.00748	ft^3/s

Low-Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (http://pubs.water.usgs.gov/wrir02-4298)

Peak-Flow Statistics Parameters [Peak Flow Statewide SIR2008 5206]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.14	square miles	0.7	1290
APRAVPRE	Mean April Precipitation	4.198	inches	2.79	6.23
WETLAND	Percent Wetlands	8.6717	percent	0	21.8
CSL10_85	Stream Slope 10 and 85 Method	20.4	feet per mi	5.43	543

Peak-Flow Statistics Flow Report [Peak Flow Statewide SIR2008 5206]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SEp	Equiv. Yrs.
2 Year Peak Flood	28.8	ft^3/s	17.3	48.1	30.1	3.2
5 Year Peak Flood	50.6	ft^3/s	29.8	85.7	31.1	4.7
10 Year Peak Flood	69.7	ft^3/s	40.2	121	32.3	6.2
25 Year Peak Flood	97	ft^3/s	53.9	175	34.3	8
50 Year Peak Flood	121	ft^3/s	64.8	224	36.4	9
100 Year Peak Flood	150	ft^3/s	77.4	289	38.6	9.8
500 Year Peak Flood	225	ft^3/s	107	476	44.1	11

Peak-Flow Statistics Citations

Olson, S.A.,2009, Estimation of flood discharges at selected recurrence intervals for streams in New Hampshire: U.S.Geological Survey Scientific Investigations Report 2008-5206, 57 p. (http://pubs.usgs.gov/sir/2008/5206/)

Response to Env-Wt 703.01 Criteria for Approval.

(a) The department shall review an application indicating that a project will be in or adjacent to a prime wetland in accordance with (b) below.
(b) Prior to approving an application for any project in or contiguous to a prime wetlands, the Applicant shall show, and the department shall find, as required under RSA 482-A:11, IV, based on clear and convincing evidence, that:

(1) There will be no significant net loss of values set forth in RSA 482-A:1;

- *The wetland that is going to be impacted has been evaluated for its functions and values as part of the prime wetland designation process. It has been determined that the wetland complex has the following functions present: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant/Pathogen Retention, Nutrient Removal/Retention Transformation, Production Export, Sediment/Shoreline Stabilization and Wildlife Habitat. Additionally, the following values were identified: Medium Recreational Value, Medium Educational/Scientific Value and Medium Uniqueness/Heritage Value. In evaluating the functions and values that were determined in comparison with the proposed impacts and the proposed upgrades to the structure, it's the Departments assessment that there will be no significant net loss to the functions or values as a result of the proposed work. The above mentioned functions and values will not be altered as a result of the proposed work.*

(2) The project is consistent with the purpose specified in RSA 482-A:1;

- *The Department has evaluated several project alternatives for this location seeking to find the least impacting alternative. The alternative referred to as replacement with Twin 48" RCP's with 8' extensions, was the preferred alternative that was chosen and determined to be the least impacting alternative that also addresses our needs for safety, and improves the hydraulics at this location. Upsizing the pipes will pass the 50 yr. storm and better accommodate the 100 yr. storm. By slightly extending the pipes we are able to improve safety without having to install guardrail. Permanent impacts have been reduced and the Department is including a proposed planting plan to mitigate the impacts to the prime wetland.*

(3) The project could not be relocated to avoid impacts on prime wetlands without either reducing the public value of the project, or negatively affecting the public health or safety;

- *As previously stated the project was evaluated to determine which design would have the least impacts. The project limits are constrained by the location of the stream and the existing roadway crossing. As such impacts to the prime wetland were not completely avoidable; however impacts were reduced as much as possible through the design selection process. Furthermore, this project is necessary to ensure public safety. Should the work not occur the temporary emergency authorization fixe would remain in place and it's not intended to be a permanent solution to this problem which would be a concern for the safety of the traveling public.*

(4) The project's impacts on prime wetlands are the minimum practical without either reducing the public value of the project, or negatively affecting the public health or safety; and

- *As previously stated this project has considered several design alternatives and the selected design was chosen for its ability to reduce prime wetland impacts to the maximum extent practicable, while still considering the needs of the public health and safety.*

(5) The project incorporates appropriate and practicable compensatory mitigation for each of the wetland functions and values of RSA 482-A:1, and each of the functions and values ranked by the municipality, that are impacted by the project. The mitigation proposed shall be appropriate in terms of matching the proposed benefit given the relative harm of the project. The mitigation shall be practicable given the technology available at the time of the application to the department.

- The Department has implemented several self-mitigating elements into this design. The Department is proposing to improve the connectivity through the structure that is currently disrupted due to the pipe failures. Additionally, the Department is proposing to include a planting plan for the south east bank/wetland to restore and improve impacted areas to the prime wetland.

NH Department of Transportation
District 6
Brentwood, 41892
Env-Wt 904.09 Alternative Design
TECHNICAL REPORT

Env-Wt 904.09(a) - If the applicant believes that installing the structure specified in the applicable rule is not practicable, the applicant may propose an alternative design in accordance with this section.

Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as *available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.)*
The Department has evaluated a number of design alternatives including one that evaluated a crossing that would be designed in accordance with the stream crossing guidelines. It was determined that an 18' open span replacement would be required to meet with stream crossing guidelines. This alternative was deemed not practicable and not selected due to cost, constructability and the increased impacts to wetlands that would have been a result of needing to raise the road and widen slopes to accommodate a structure of this size. Due to the prime wetlands on the downstream side it was determined this was not the least impacting alternative. From a cost perspective, a smaller upgrade such as the one proposed would still achieve the safety and hydraulic needs at a much lower cost to the State.

The proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*, as specified below.

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings – New Tier 2 stream crossings, replacement Tier 2 crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 crossings shall be designed and constructed:

(a) In accordance with the NH Stream Crossing Guidelines.
The Department is proposing to increase the size of the twin pipes to accommodate better AOP, Connectivity and Geomorphic Condition.

(b) With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing.
The proposed crossings have been upsized and it's anticipated that when set at the appropriate invert elevations the natural sediments will accumulate within the structures much like they have done within the existing crossings.

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage.
The existing crossings have vegetated bank leading up to the inlet and outlet of the structure. This will remain the same post construction. The department is proposing to provide additional plantings on the south east bank/wetland as part of our mitigation proposal.

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain.

The existing alignment of the stream as it enters the culvert is straight on. The natural alighnment will be preserved and will continue to flow straight into the proposed crossings as well. The structures will be set to match the existing streambed elevations.

(e) To accommodate the 100-year frequency flood, to ensure that (1) there is no increase in flood stages on abutting properties; and (2) flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability.
The proposed crossing has been hydraulically evaluated and it has been determined that it will pass the Q50 and accommodate the Q100. This will be achieved without increasing the flooding to abutting property owners.

(f) To simulate a natural stream channel.
Simulated natural stream channel is not proposed. It is anticipated that the structures will naturally fill in if they are set at the appropriate invert elevations just below the existing streambed elevation.

(g) So as not to alter sediment transport competence.
The proposed upgrade, going from twin 36" diameter to Twin 48" diameter will ensure improved sediment transport through the structure.

Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:

Env-Wt 904.01
(a) Not be a barrier to sediment transport;
The proposed upgrade, going from twin 36" diameter to Twin 48" diameter will ensure improved sediment transport through the structure.

(b) Prevent the restriction of high flows and maintain existing low flows;
The proposed upgrade, going from twin 36" diameter to Twin 48" diameter will prevent the restriction of high flows and maintain existing low flows.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;
The proposed upgrade, going from twin 36" diameter to Twin 48" diameter will ensure improved AOP beyond the duration of construction.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;
The proposed upgrade, going from twin 36" diameter to Twin 48" diameter will prevent an increase in the frequency of flooding or overtopping of banks.

(e) Preserve watercourse connectivity where it currently exists;
The proposed work will maintain the brook's natural alignment and will not result in a disruption to the connectivity where it currently exists. Inverts will be set so as not to create a perch.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

The existing failed pipes are acting as a current disruption of connectivity. By removing the failed pipes and installing larger replacements we will be restoring connectivity where it has currently been disrupted.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and

The proposed crossing has been designed so that it does not result in increased erosion, aggradation, or scour upstream or downstream of the crossing.

(h) Not cause water quality degradation.
The proposed work will implement appropriate BMP's prior to, during, and after construction to ensure water quality standards are upheld.

*****Note: An alternative design for <u>Tier 1</u> stream crossings must meet the general design criteria (Env-Wt 904.01) only to the *maximum extent practicable*.**

NEW HAMPSHIRE NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Sarah Large, NH Department of Transportation
7 Hazen Drive
Concord, NH 03301

From: NH Natural Heritage Bureau

Date: 4/2/2018 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 3/30/2018

NHB File ID: NHB18-1027 **Applicant:** Sarah Large

Location: Brentwood
North Road near the Rockingham Sherrif's Department

Project Description: Replace existing twin pipes with a single upsized crossing as permanent fix to an emergency failure

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.

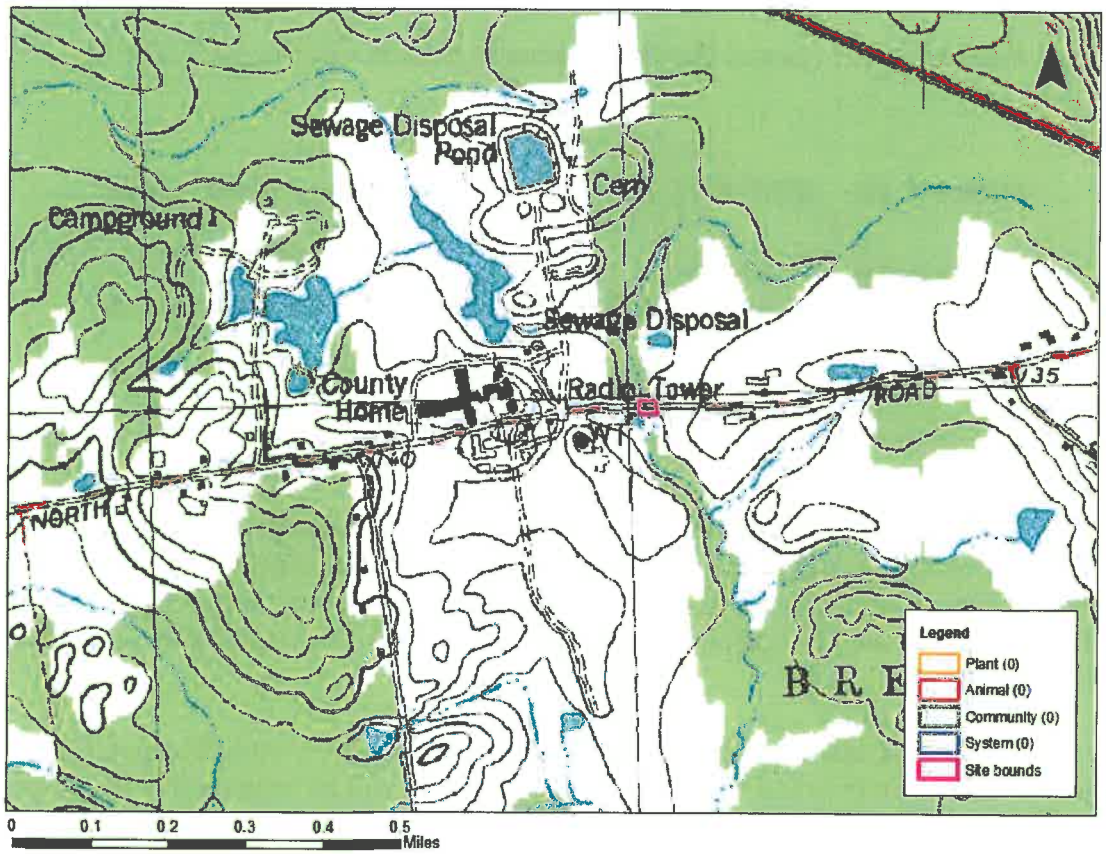
It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 3/30/2018, and cannot be used for any other project.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

MAP OF PROJECT BOUNDARIES FOR: **NHB18-1027**

NHB18-1027



Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-1450
Event Code: 05E1NE00-2018-E-03283
Project Name: Brentwood Emergency Follow Up

March 30, 2018

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-1450

Event Code: 05E1NE00-2018-E-03283

Project Name: Brentwood Emergency Follow Up

Project Type: TRANSPORTATION

Project Description: replace twin pipes with single open bottom crossing due to emergency failure

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.012117645455575N71.04815607623343W

Counties: Rockingham, NH

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia *Isotria medeoloides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Project___ Brentwood 41892_____

Wetland Application – NHDOT Cultural Resources Review

For the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C*, and/or state regulation RSA 227-C:9, *Directive for Cooperation in the Protection of Historic Resources*, the NHDOT Cultural Resources Program has reviewed the enclosed Standard Dredge and Fill Application for potential impacts to historic properties.

Proposed Project: a District 6 Project with wetland permitting (Project: Brentwood 41892) associated with the failure of existing twin 36" CMP's on North Road. District has temporarily placed twin 24" plastic pipes and covered them with a steel plate under a NHDES wetlands Emergency Authorization to get the road reopened. The proposed permanent solution for this failure consists of installing twin 48" pipes with newly constructed headwalls. This is an going to be an accelerated project with the goal of completing the work while school is on break (July and August) and getting it completed before it starts to back up. This project on a tight timeline to complete the environmental review and permitting.

Above Ground Review
Known/approximate age of structure: Existing twin 36" Corrugated Metal pipes (one arch and one circular) failed; on North Road over unnamed tributary to Dudley Brook
☒ No Potential to Cause Effect/No Concerns Jillian Edelmann indicated she has no concerns, email 4/10/2018
☐ Concerns:

Below Ground Review
Recorded Archaeological site: ☐Yes ☒No
Nearest Recorded Archaeological Site Name & Number: 27-RK-0003 Labree Farmstead ☐Pre-Contact ☒Post-Contact
Distance from Project Area: 4691 ft (1.429 km) northeast of project area
☒ No Potential to Cause Effect/No Concerns Location is a poorly drained and soils are classified as Scitico silt loam soils, constituting farmland of local importance. Proposed culvert replacement will primarily be associated with soils already disturbed by road fill and the former culvert construction.
☐ Concerns:

Reviewed by:

Sheila Charles

4/11/2018

NHDOT Cultural Resources Staff
Looking south from North Road

Date:

S:\Environment\PROJECTS\BRENTWOOD\41892\Cultural\Brentwood 41892 Wetland App CR review 4.11.2018.docx

Looking northeast from North Road

US Army Corps of Engineers®
New England District

U.S. Army Corps of Engineers
New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps 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 PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	x	
2. Wetlands	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 SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		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 size of the existing impervious surface area?	N/A	
2.7 What is the size of the proposed impervious surface area?	no change	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	no change	
3. Wildlife	Yes	No
3.1 Has the NHB 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 a NHB determination.)	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: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		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 PGP, GC 21?	x	

4. Flooding/Floodplain Values	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?		N/A
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?**		N/A

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

View of Outlet of Dudley Brook – Post Emergency temp fix 24" pipes on top of collapsed 36" pipes

May 21, 2018

View of Downstream Bank Right - May 21, 2018

View of Downstream Bank Left / area that includes mitigation plantings - May 21, 2018

View east of Downstream Bank Left – Areas that includes mitigation plantings. - May 21, 2018

Downstream looking back towards North Road. May 21, 2018

Inlet of Dudley Brook. Twin pipes on top of collapsed 36" pipes. Temp emergency fix. May 21, 2018

Inlet looking upstream - May 21, 2018

View East from North Westerly Wetland looking towards inlet (where cones are). May 21, 2018

Upstream looking back at inlet from temp impact area "E". May 21, 2018

Outlet area – 7/26/2018 (identified Loosestrife adjacent to proposed mitigation planting area.)

Brentwood 41892

Construction Sequence

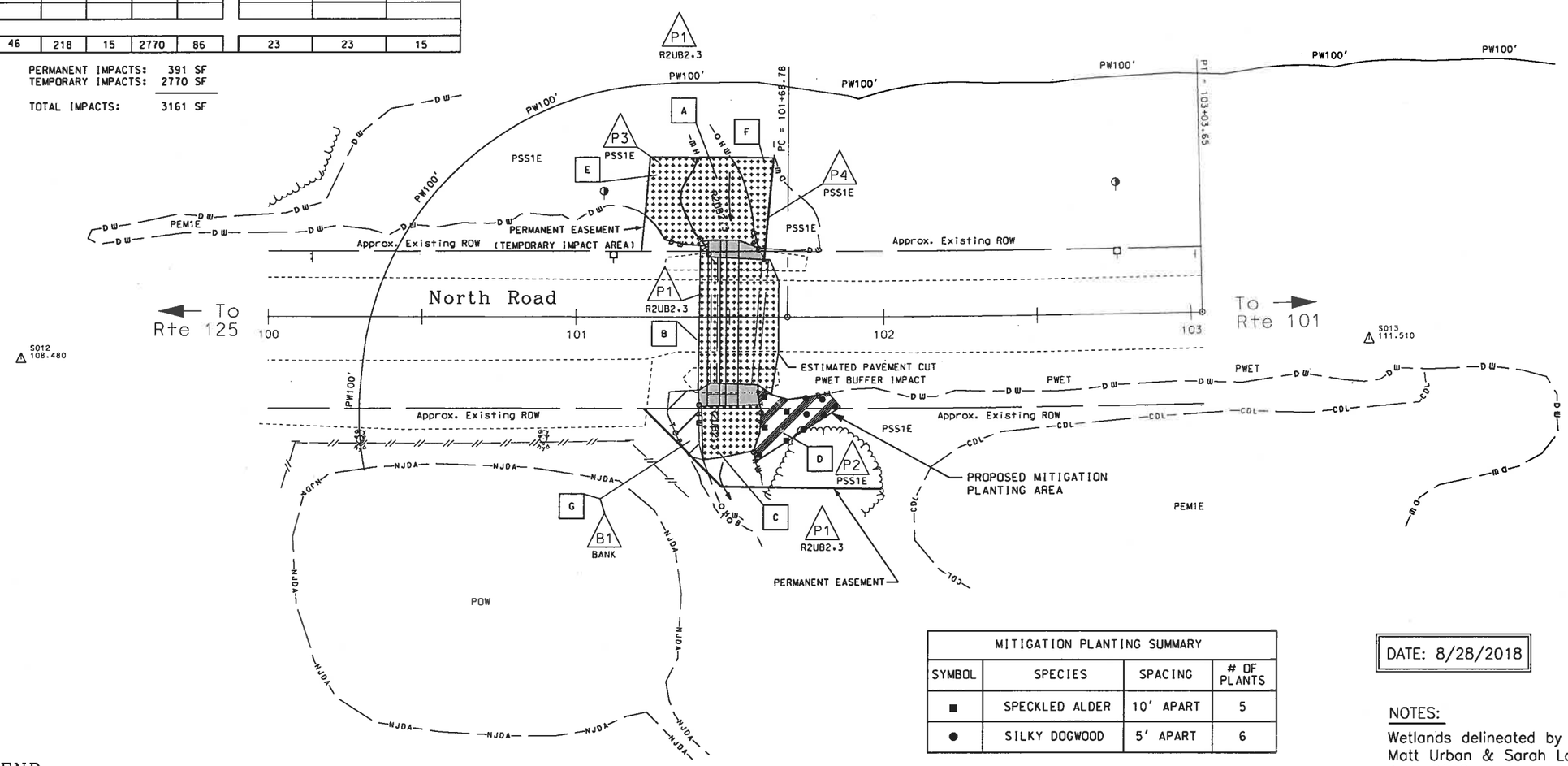
1. Install temporary cofferdam in the brook, prepare sediment basin and divert flow through a bypass pipe or pumping through a bypass.
2. Dewater the work zone.
3. Excavate soils covering pipes, transport to temporary stockpile location.
4. Replace failed pipes
5. Install new pipes
6. Remove cofferdams and restore the site.
7. Stabilize ground disturbances
8. Return in spring to complete plantings in accordance with planting plan.

Note: The Project will utilize BMP's from the Best Management Practices manual during all phases of construction.

WETLAND IMPACT SUMMARY											
WETLAND NUMBER	WETLAND CLASS-IFICATION	LOCATION	AREA IMPACTS						LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY		PERMANENT		
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)				BANK LEFT	BANK RIGHT	CHANNEL
			SF	LF	SF	LF	SF	LF	LF	LF	LF
P1	R2UB2.3	A			88	8	523	27			8
PRIME	PWET 100'	B					1053	41			
P1	R2UB2.3	C		23	130	7	323	18		23	7
P2	PSS1E	D					320				
P3	PSS1E	E					346				
P4	PSS1E	F					205				
B1	BANK	G	173	23					23		
PRIME	PWET 100'										
		TOTAL	173	46	218	15	2770	86	23	23	15

PERMANENT IMPACTS: 391 SF
TEMPORARY IMPACTS: 2770 SF

TOTAL IMPACTS: 3161 SF



MITIGATION PLANTING SUMMARY			
SYMBOL	SPECIES	SPACING	# OF PLANTS
■	SPECKLED ALDER	10' APART	5
●	SILKY DOGWOOD	5' APART	6

DATE: 8/28/2018

NOTES:

Wetlands delineated by NHDOT
Matt Urban & Sarah Large
June 2018

20 0 20 40
SCALE IN FEET

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

- # WETLAND DESIGNATION NUMBER
- # WETLAND IMPACT LOCATION
- # WETLAND MITIGATION AREA
- MITIGATION

WETLAND CLASSIFICATION CODES			
R2UB2/3	RIVERINE. LOWER PERENNIAL. UNCONSOLIDATED BOTTOM. SAND/MUD	PSS1E	PALUSTRINE. SCRUB-SHRUB. SEASONALLY FLOODED/SATURATED
BANK	BANK	PEMIE	PALUSTRINE. EMERGENT. SEASONALLY FLOODED/SATURATED
NJDA	NON-JURISDICTIONAL DRAINAGE AREA	PWET	PRIME WETLAND
		PW100'	PRIME WETLAND 100' BUFFER

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION• BUREAU OF HIGHWAY DESIGN

WETLAND IMPACT PLAN

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
41892pwt	41892	1	1

NUMBER	DATE	STATION	DESCRIPTION

REVISIONS AFTER PROPOSAL

SDR PROCESSED DATE
NEW DESIGN TSM DATE JULY 2018
SHEET CHECKED MRU DATE 8/29/2018
AS BUILT DETAILS DATE