

**STATE OF NEW HAMPSHIRE  
INTER-DEPARTMENT COMMUNICATION**

*J&L*  
on behalf of

**DATE:** April 25, 2019

**FROM:** Andrew O'Sullivan  
Wetlands Program Manager

**AT (OFFICE):** Department of  
Transportation

**SUBJECT** Dredge & Fill Application  
Lyme Thetford, 14460

Bureau of  
Environment

**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 Stantec Consulting Services for NH DOT Bureau of Bridge Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(p). The project is located on East Thetford Road in the Town of Lyme, NH and Thetford VT. The proposed work consists of Rehabilitation of steel truss bridge no. 053/112 over Connecticut River between Lyme, NH & Thetford VT that temporarily impacts 50,725 SF of Riverine wetlands and stream bank. Impacts are to repair the NH bridge abutment, remove and replace existing bridge pier with 358 SF permanent impact increase for the new pier. A temporary trestle to be constructed from Vermont side to access the pier and the Vermont & NH abutments..

This project was reviewed at the Natural Resource Agency Coordination Meeting on March 20, 2019. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link:  
<http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm>

Mitigation was determined not to be required for the project. Please reference Natural Resource Agency Meeting Minutes from March 20, 2019.

The lead people to contact for this project are Robert Landry, Administrator, Bureau of Bridge Maintenance (271-2731 or robert.landry@dot.nh.gov) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or matt.urban@dot.nh.gov).

A payment voucher has been processed for this application (Voucher #567426) in the amount of \$10,000.

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

SEL  
AMO:amo  
Enclosures

cc:  
BOE Original  
Town of Lyme (4 copies via certified mail)  
David Trubey, NH Division of Historic Resources (Cultural Review Within)  
Bureau of Construction  
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)  
Connecticut River Upper Valley Local Advisory Subcommittee (via certified mail)



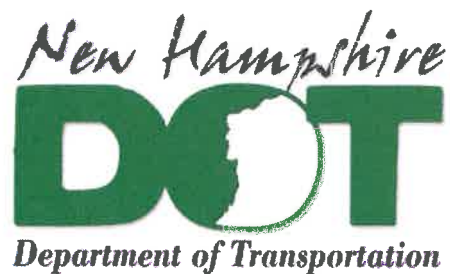
**State of New Hampshire - Wetlands Permit Application**

**Lyme, NH – Thetford, VT, A000(394), 14460**

**East Thetford Road Bridge over the Connecticut River  
Bridge Rehabilitation Project**



**April 2019**



# Lyme, NH – Thetford, VT 14460 Wetlands Permit Application

## Table of Contents

	<b>Page</b>
Wetlands Permit Application Form	1
Figure 1 – USGS Location Map	5
Wetlands Permit Application – Attachment A	6
Exhibit A -NHDOT-BOE Natural Resources meeting minutes	14
Exhibit B - StreamStats Map	17
Exhibit C - Alterative Design Technical Report	19
Exhibit D - NH NHB18-3028	22
Exhibit E - USF&WS IPAC Consultation	24
Exhibit F - NHDOT Letter of No Effect to USF&WS	29
Exhibit G - USF&WS Consistency letter for NLEB	32
Exhibit H - Adverse Effect Memo	40
Exhibit I - Executed Memorandum of Agreement	45
Exhibit J- Army Corps of Engineers – Standard Form Appendix B	53
Exhibit K - Wetlands Permit Application Photographs and Photo plan	55
Exhibit L - NOAA Essential Fish Habitat Consultation	61
Exhibit M - NH F&G Wildlife Habitat	62
Exhibit N - US Coast Guard letter	64
Exhibit O - Consultation letter from NH Office of Energy and Planning	65
Exhibit P – Assessment of Floodplain Impact Memo	66
Exhibit Q – FIRM Flood Insurance Map – NH	67
Exhibit R– FIRM Flood Insurance Map – VT	68

Appendix A - Wetlands Permit Application Plan set 4/17/2019



# WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau  
Land Resources Management



Check the status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)

RSA/Rule: [RSA 482-A/ Env-Wt 100-900](#)

Application No.	Application Date	Application Fee	File No.
			Check No.

**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: 03 Day: 20 Year: 2019  
 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: **East Thetford Road**      TOWN/CITY: **Lyme**

TAX MAP: **403**      BLOCK:      LOT:      UNIT:

USGS TOPO MAP WATERBODY NAME: **Connecticut River**       NA      STREAM WATERSHED SIZE: **3137 SQ MI**       NA

LOCATION COORDINATES (if known): **N478657.6527,E847933.4509**       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.

**Rehabilitation of steel truss bridge no. 053/112 over Connecticut River between Lyme, NH & Thetford VT that temporarily impacts 50,725 SF of Riverine wetlands and stream bank. Impacts are to repair the NH bridge abutment, remove and replace existing bridge pier with 358 SF permanent impact increase for the new pier. A temporary trestle to be constructed from Vermont side to access the pier and the Vermont & NH abutments.**

**5. SHORELINE FRONTAGE:**

NA This does not have shoreline frontage.      SHORELINE FRONTAGE: **66 ft - ROW**  
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	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Individual Sewerage Disposal per RSA 485-A:2	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Subdivision Approval Per RSA 485-A	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Shoreland Permit Per RSA 483-B	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<b>Exempt</b> _____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> 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    -    3028
- b.  [Designated River](#) the project is in ¼ miles of: Connecticut River ; 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.: **NH DEPT. TRANSPORTATION**TRUST / COMPANY NAME: **NH DEPT. TRANSPORTATION**MAILING ADDRESS: **P.O. Box 483**TOWN/CITY: **Concord**STATE: **NH**ZIP CODE: **03302-0483**EMAIL or FAX: **andrew.osullivan@dot.nh.gov**PHONE: **603-271-3226**

ELECTRONIC COMMUNICATION: By initialing here: \_\_\_\_\_, 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.:

TRUST / 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.

**10. AUTHORIZED AGENT INFORMATION**LAST NAME, FIRST NAME, M.I.: **Leach, Michael**COMPANY NAME: **Stantec Consulting Services, Inc**MAILING ADDRESS: **5 Dartmouth Drive - Suite 200**TOWN/CITY: **Auburn**STATE: **NH**ZIP CODE: **03032**EMAIL or FAX: **michael.leach@stantec.com**PHONE: **603-206-7538**ELECTRONIC COMMUNICATION: By initialing here ml, I hereby authorize NHDES to communicate all matters relative to this application electronically.**11. PROPERTY OWNER SIGNATURE:**

See the Instructions &amp; 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](http://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

**L. Robert Landry**

Print name legibly

**4/24/2019**

Date

## 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.

	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	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Scrub-shrub wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Emergent wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Wet meadow	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Intermittent stream	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Perennial Stream / River	358 / 50 <input type="checkbox"/> ATF	50,200 / 130 <input type="checkbox"/> ATF
Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Intermittent stream	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Perennial stream / River	/ <input type="checkbox"/> ATF	525 / 65 <input type="checkbox"/> ATF
Bank - Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Tidal water	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Salt marsh	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Sand dune	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland buffer	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Undeveloped Tidal Buffer Zone (TBZ)	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Previously-developed upland in TBZ	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Lake / Pond	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - River	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Tidal Water	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Vernal Pool	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
<b>TOTAL</b>	<b>358 / 50</b>	<b>50,725 / 195</b>

**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) 51,083 sq. ft. X \$0.20 = \$ 10,216.60

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 = \$ 10,216.60

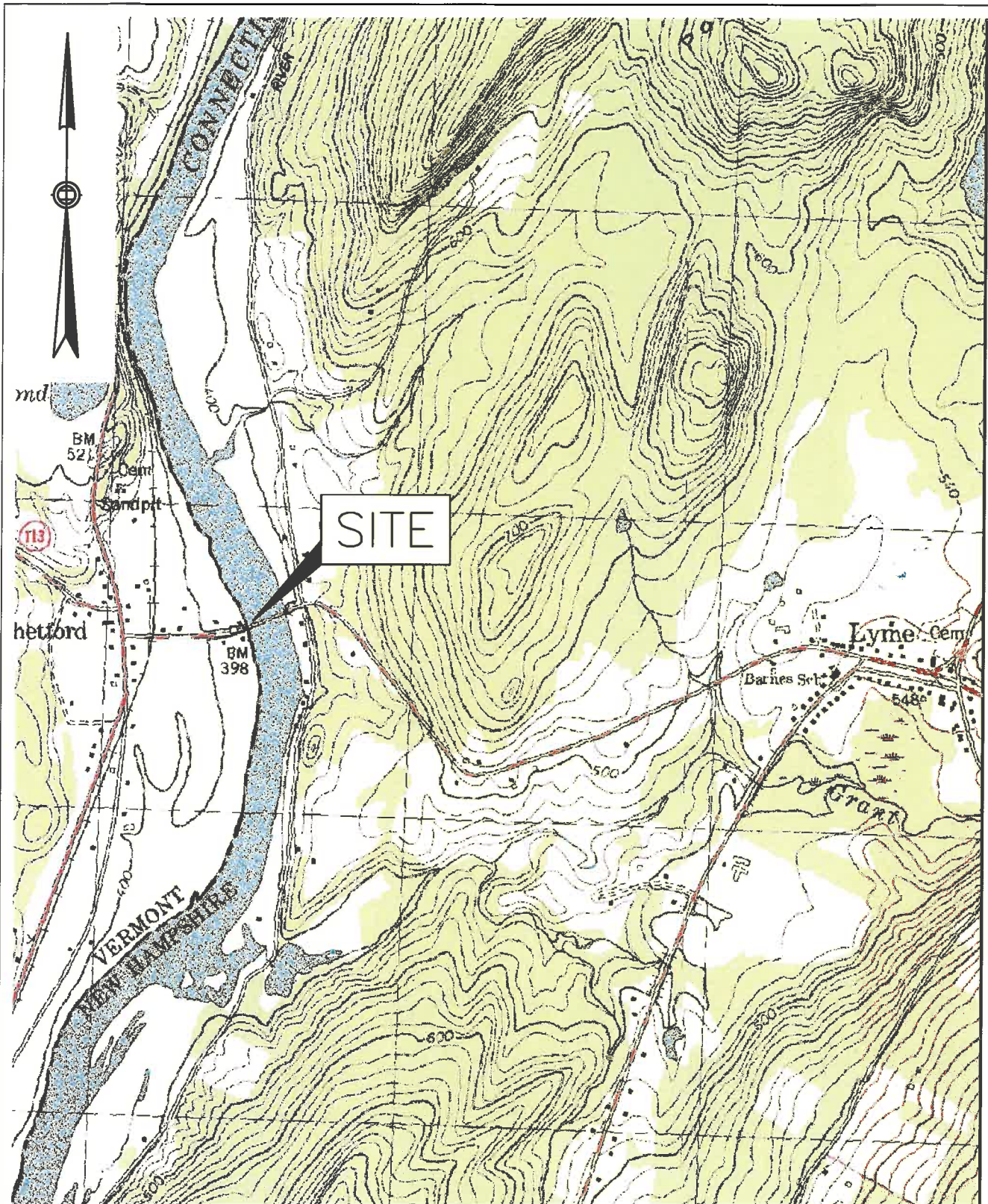
The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 10,000\*

\*application fee cap

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

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



**Stantec**

Stantec Consulting Services, Inc.  
 5 DARTMOUTH DRIVE, SUITE 101  
 AUBURN, NEW HAMPSHIRE 03032  
 TEL 603-689-8672  
 FAX 603-689-7636

**FIGURE 1**

Site Location Plan  
 Bridge Over The Connecticut River  
 Lyme, New Hampshire  
 Thetford, Vermont

Scale: 1"=2000'±





**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](http://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.

The need of this project and proposed impacts are to maintain the safety, integrity, reliability, and continuity of a vital local river crossing serving Thetford, VT and Lyme, NH by addressing the current structural deficiencies of the 81 years old existing bridge crossing the Connecticut River and removing this bridge from the New Hampshire Department of Transportation (NHDOT) red list.

A NHDOT inspection of the bridge and pier completed in the fall of 2013 indicated the bridge's deteriorated condition is no longer capable of safely supporting legal loads and the bridge was subsequently posted at a 15-ton load limit in 2014 and placed on the NHDOT's bridge red list. Some repairs were made in the fall 2014; however, deterioration of the bridge floor system is still ongoing, and thus the 15-ton posting was retained with the bridge remaining on the NHDOT's red list. The inspection also found the existing concrete pier is in poor condition and must be replaced. The concrete pier has extensive cracking and spalling concrete and has exposed reinforcing steel above and below the waterline.

The proposed rehabilitation of the existing bridge project includes mostly temporary wetland impacts to conduct the bridge rehabilitation work. The proposed project includes a small permanent impact (358 SF) necessary for the new replacement pier. See Figure 1 for the project location. See the attached Wetland Plans in Appendix A for details of the proposed impacts under this project.

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

The proposed alternative is the most practical, least impacting to wetlands and surface waters with the utilization of temporary trestles to access the existing deteriorated bridge and pier. The temporary trestle access is proposed from the Thetford VT side of the river through a farm field. Since the bridge was originally constructed in 1937, hydroelectric dams located upstream and downstream of the bridge have been constructed, which has increased the river depth. Due to the additional river depth and existing subsurface conditions, a temporary cofferdam that was used during in the original construction is not practical to access and replace the existing pier. The temporary impact associated with the temporary trestle deck placed above the river in NH is 50,200 SF. A temporary impact to the NH river bank of 525 SF is proposed and is associated with the bridge abutment impact to relocate/slide the bridge during the pier reconstruction and bridge abutment reconstruction. The temporary impact for the trestle deck access in and from Vermont is 26,600 SF to the river and 850 SF to the Vermont river bank for the bridge abutment impact to relocate/slide the bridge during the pier reconstruction and reconstruct the abutment and the trestle access from the farm field used for the temporary construction access.

The permanent impact under this application is for the additional pier base size (width and length) for the replacement pier needed to address the increased water depth and existing subsurface conditions. The net total permanent impact area is 358 SF. The total linear length of the new pier is 50 LF along the river channel.

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

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3. The type and classification of the wetlands involved.

**The project wetland involved is the Connecticut River with a classification of Riverine, lower perennial, unconsolidated bottom, permanently flooded - R2UBH and NHDES jurisdictional river bank.**

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

**The Connecticut River is the low point of the watershed area relative to the nearby wetlands and surface waters and is the only wetland impacted by this project.**

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

**The Connecticut River is the largest river in the state and is identified as a Designated River. The NH Natural Heritage Bureau (NHB) review – Exhibit D - did not identify any rarity of the wetlands or surface waters.  
The project area is not located in a tidal area.**

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

**The surface area for the construction trestle and cofferdams in New Hampshire is 50,200 SF and the Vermont trestle portion is 26,600 SF, which are temporary impacts.  
The project includes temporary bank impacts of 525 SF in New Hampshire to remove a portion of the existing bridge abutment for the temporary relocation of the bridge during the pier replacement and to reconstruct the bridge abutment after resetting the bridge on the new pier.  
The proposed bridge pier replacement will be permanent impact increase of 358 SF resulting from the removal of the existing pier and construction of the replacement pier.**



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

**(a, b, c) A recent NH Natural Heritage Bureau (NHB) review – Exhibit D – and a US Fish and Wildlife Service (USFWS) IPAC review - Exhibit E - relative to the presence of Federal or State listed threatened and endangered or rare species, or natural communities of special or exemplary status was conducted for the project area. The USF&WS IPAC consultation review indicated Dwarf Wedgemussel (*Alasmidonta heterodon*) and Northern Long-eared Bat (*Myotis septentrionalis*), may occur in the project area.**

**A freshwater mussel survey in the Connecticut River within the project area was conducted on August 15 and 16, 2018 with none of the mussel species observed being federally or state listed. In addition, the recent NHB Data Check for the project area indicated that there are only historical records in the project area, and that several field surveys over the past 15 years by the Vermont Heritage Bureau failed to locate Dwarf Wedgemussel and the species is ‘presumed extirpated’. The NHDOT, on behalf of the FHWA, has determined that a finding of no effect on the Dwarf Wedgemussel is appropriate for this project. The letter noting the “no effect” determination (October 2, 2018) provided to the USFWS New England Field Office is located in Exhibit F.**

**The NHDOT has coordinated with the USFWS New England Field Office and has received a letter of concurrence (dated September 5, 2018) with the finding that the project may rely on the Northern Long-eared Bat and NLEB Programmatic Biological Opinion (PBO) and that the project will have no effect to the NLEB. A bridge inspection conducted in August 2018 found no evidence of bat use at the project site. A copy of the consistency letter from USFWS is located in Exhibit G.**

**(d) The project will not impact migratory fish or wildlife. See correspondence from NOAA in Exhibit L.**

**(e.) No exemplary natural communities have been identified in the vicinity of the project. Highest Ranked Habitats and Conservation Focus Areas, per the NH Wildlife Action Plan, do not exist in or near the project area. See attached NHF&G map in Exhibit M .**

**(f) No vernal pools are present in the project area.**

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

**The proposed project will have temporary impacts on public commerce during construction with the closure of the bridge and detours north and south. currently trucks over 15 tons are detoured north or south. Upon completion, the project will fully restore public commerce with the restoration of the bridge to full legal load limits and removal of the truck detour.**

**The proposed project will have temporary impacts to navigation and recreation along the westerly portion of the Connecticut River within the project areas due to the installation of the trestles and a cofferdam during construction. Navigation and recreation along the easterly side of the river will not be impacted and is to be maintained, except for a temporary interruption during the temporary bridge relocation work prior to and after the pier reconstruction. Federal Highway (FHWA) on behalf of NHDOT corresponded to the US Coast Guard relative to the proposed rehabilitation and a permit is not required. See Exhibit N.**

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.

**Temporary interference of the aesthetic interests of the general public is anticipated during the 2-year construction span with the proposed rehabilitation work to the bridge and pier and the encapsulation of the bridge during painting. As part of the Memorandum of Agreement (MOA) relative to the historic integrity of the bridge and bridge pier, the proposed replacement pier is to be similar to the existing pier and would preserve the existing aesthetic interest of the general public upon completion. The proposed painting of the existing bridge would likely provide an aesthetic improvement to the general public in the project area upon completion. A copy of the Adverse Effects Memo (Exhibit H) and Memorandum of Agreement (Exhibit I) are provided in application information.**

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

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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 project will temporarily interfere and obstruct public rights of passage during construction with the closure of the existing bridge during construction and detouring traffic north and south of the project area during the 2-year construction span. Currently trucks over 15 tons are detoured north and south, due to the existing bridge load limits, and some public rights of passage and access in the project area are currently obstructed and interfered. Upon completion of the project and restoration of the bridge to full legal load limits, interference and obstructions of the public rights of passage and access will be restored in the project area.**

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 proposed project is not intended to impact abutting owners upon completion of the bridge rehabilitation project. All disturbed areas adjacent to the abutting owners will be restored to the current conditions upon completion. However, during construction abutting property owners are likely to be impacted due the adjacent construction activities and closure of the bridge and use of detours to access the adjacent Town across the river.**

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

**Upon completion of the bridge rehabilitation project, the general public's health, safety and well-being will be benefitted. The bridge will be restored to full legal loads to address public safety. Access between the adjacent communities for large/heavy vehicles including emergency vehicles will be restored to address health and well-being.**

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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 bridge rehabilitation project is not intended to impact/change the quantity or quality of the surface or ground water or change the amount of drainage entering the project site or the amount exiting the site, since the existing drainage patterns are to be maintained unchanged upon completion of the project.**

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

**The project will implement standard erosion control measures on land to reduce the potential for erosion and sedimentation. A cofferdam with a silt boom curtain is to be used for the proposed pier construction to reduce the potential for sedimentation in the river. The proposed change to the pier, minor increase in size, is estimated to be less than 1% of the total cross-sectional area of the 100-year floodplain under the bridge. The proposed change to the existing pier is not anticipated to increase the potential for flooding upon completion of the project. As part of the project, the NH Office of Energy and Planning was consulted – See Exhibit 0. A memorandum relative to the proposed change to the pier is provided in Exhibit P.**

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 project proposes to replace the existing bridge pier in the river with one that is slightly larger and longer due to the changes in the river condition with the construction of the hydroelectric dams located upstream and downstream. The area of the new pier will increase by 358 SF that includes an increased length of 4 feet (46 feet existing to 50 feet proposed) and increased width of 4 feet (existing 8 feet to proposed 12 feet).**



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 project proposes mostly temporary impacts and only minor permanent impacts (358 SF) to the river for the rehabilitation of the existing bridge. Due to the uniqueness of this project, it is unlikely that abutters would seek to impact the Connecticut River to the same extent. However, should abutters seek to impact the river in a similar fashion, we would anticipate incremental permanent impacts to the river that would affect the functions and values provided by the river.**

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

**The project proposes temporary impacts to the river and the river surface with the installation of temporary trestles and a cofferdam during construction that are not anticipated to impact the values and functions of the total river (wetland) upon completion. Some minor shading of the river in the vicinity of the temporary trestle is anticipated along with temporary river impacts for the piles supporting the trestle during construction, but upon completion of the project, the temporary shading and piles will be removed, and the river restored to the current condition.**

**Temporary river bank impacts are also anticipated during construction and the impact areas are to be restored to the current conditions upon completion of the rehabilitation work to the bridge abutments associated with the bank impacts.**

**The construction of the replacement bridge pier will likely involve a temporary cofferdam to allow removal of the existing pier and construction of a replacement pier. The small increase in size of the proposed pier is not anticipated to impact the existing values and functions of the river.**

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.

**There are no National Landmarks in proximity to this site.**

**The existing bridge is eligible for National Register and a Memorandum of Agreement (MOA) with the State of NH, State of Vermont and FWHA for the proposed bridge rehabilitation work has been executed. A copy of the Adverse Effect Memo (Exhibit H) and executed MOA (Exhibit I) are included in application submission.**

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 portion of the Connecticut River that flows through the project area is Designated River under RSA 483 of the New Hampshire River Management and Protection Program as identified as a "Rural" river. The proposed rehabilitation of the existing bridge is intended to retain the value of the area by preserving and rehabilitating the existing bridge. In accordance with RSA 483, a copy of this wetland application is being sent to the Connecticut River Joint Commissions - Upper Valley Subcommittee for their review.**

20. The degree to which a project redirects water from one watershed to another.

**The project does not redirect water from one watershed to another.**

Additional comments

None



**BUREAU OF ENVIRONMENT  
CONFERENCE REPORT**

**SUBJECT:** NHDOT Monthly Natural Resource Agency Coordination Meeting

**DATE OF CONFERENCE:** March 20, 2019

**LOCATION OF CONFERENCE:** John O. Morton Building

**ATTENDED BY:**

**NHDOT**

Matt Urban  
Sarah Large  
Andrew O’Sullivan  
Ron Crickard  
Arlene Allen  
Marc Laurin  
Bob Juliano  
Jason Tremblay  
Keith Cota  
Don Lyford  
Rick Faul  
Andrew Czachor  
Maggie Baldwin  
Tobey Reynolds  
Josh Lafond  
Kathy Corliss

Shaun Flynn

**ACOE**

Mike Hicks

**Federal Highway**

Jamie Sikora

**NHDES**

Lori Sommer  
Eben Lewis  
Chris Williams

**NHF&G**

Carol Henderson  
Heidi Holman  
Brett Ferry

**NHB**

Amy Lamb

**Consultants/Public  
Participants**

Mike Leach  
Gerard Fortin  
Adam Stockin  
Jonathan Pitre  
Seth Hill  
Brian Colburn  
Christine Perron  
Burr Phillips  
Greg Howard

**PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:** *(minutes on subsequent pages)*

Postpone the finalization of February 20, 2019 Meeting Minutes.....2  
 Bedford-Manchester-Londonderry, #11512 (DPR-F-0047(001), A000(203), A000(256)).....2  
 Lyme-Thetford, #14460 (A000(394)).....3  
 Durham, #16236 (X-A0001(202)) .....5  
 Barnstead, #14121 (X-A000(208)) .....6  
 Plaistow-Kingston, #10044E (X-A000(378)) .....8  
 Lebanon-Hartford, #16148 (A001(154)).....9

*(When viewing these minutes online, click on a project to zoom to the minutes for that project)*

**Lyme-Thetford, #14460 (A000(394))**

Gerry Fortin introduced the project and noted it was last before the committee in 2014. Mike Leach presented an overview of the project:

- Through-truss (Parker) bridge built in 1937
- Eligible for National Historic Register
- Consists of two 230-foot spans
- Bridge roadway is narrow at 21 feet between curbs
- Bridge is on NHDOT Red List (since 2013)
- Carries approximately 2100 vehicles per day
- Current 15-ton load posting. NHDOT Forces made repairs in fall of 2014, but posting remains due to overall poor condition of the floor system

Preferred Alternative for Addressing the Deficient Bridge Is Rehabilitation. Rehabilitation summary:

- Replace the pier
- Repair the abutments
- Replace portions of the floor system framing
- Replace concrete bridge deck (roadway)
- Replace the bridge railing and steel curb
- Clean and paint all steel truss components
- Includes limited approach roadway work as necessary to provide smooth transitions to the new bridge deck

Work completed to date includes:

- Natural Resources meeting in 2014
- Public information meetings in Lyme, NH in 2014 and Thetford, VT in 2015
- Cultural Resources meetings (4) in 2015 and 2016
- Phase 1A and 1B Archaeological assessment of Access site from Vermont in 2016
- Memorandum of Agreement (MOA) for impacts to historic structure executed in July 2017
- USFWS I-Pac with Dwarf Wedgemussel (DWM) and Northern Long-eared Bat (NLEB) listed
- DWM scuba survey conducted in August 2018 with no findings of listed species
- DWM No Effect memorandum by NHDOT to USFWS dated Oct 2018
- NLEB bridge survey and access site location conducted in August 2018 and No Effect Determination by USFWS Sept 2018
- Updated NHB18-3028 by NHDOT – Sept 2018 with no listing
- Floodway coordination with NH Office of Energy and Planning (OEP) in 2016 with no concerns
- Coordination with VTrans Natural Resources with listing of DWM and NLEB – June 2016
- NEPA document completed and approved by FHWA January 2019
- Coordination with Army Corps-NH and VT on project in Fall 2018 and General Permit (GP) conditions.

Current status - working on wetland permit impacts and application to conduct rehabilitation work: Project wetland impacts are:

- VT impacts for temporary trestle access and repairs to bridge abutments totals to 27,900 SF
  - 26,600 SF to river (R2UBH) of temporary impact associated with the trestle construction;
  - 1,300 SF of Bank impact (110 LF) for access and to rehabilitate the bridge abutments
- NH temporary and permanent impacts total to 51,083 SF with:
  - 50,200 SF to river (R2UBH) of temporary impact associated with the trestle construction;
  - 358 SF permanent impact (50 LF) for the larger new pier;
  - 525 SF of Bank impact (70 LF) to rehabilitate the bridge abutments

Bridge Rehabilitation construction will be over 2+ construction seasons to begin in the Fall of 2019. Work will require the bridge to be closed and traffic detoured north and south. The bridge will be slid apart to

remove the existing pier and construct a new pier in the same location and slid back together in the first season+. The second season will close the bridge again to encapsulate for painting. Anticipate completion in Fall 2021.

Next steps for the project:

- Address NHDOT-BOE review comments of draft permit application and complete NHDES wetland application. Provided to NHDOT-BOE for submittal.
- Coordination with Vermont Agency of Natural Resources (VTANR) for Stream Alteration permit for impacts for temporary trestle access and repairs to bridge abutments
- Obtain project permits: NHDES, ACOE-NH, ACOE-VT, VTANR
- Finalize contract documents for bidding
- Complete MOA mitigation items prior to construction completion
- 

Michael Hicks of ACOE-NH noted this was a federal highway project and lead. He noted that the US Coast Guard information stated it was exempt and the ACOE would not require a Section 10 permit. Mike asked for a cross section of the proposed river work for fill below the Ordinary High Water (OHW) for information. He noted that the bridge painting work should ensure no pollutants get to the river. He noted the work should fit within the General Permit (GP) requirement for both states (NH & VT). He has coordinated with Mike Adams of the ACOE-VT about the project.

Lori Sommer of NHDES asked if the proposed pier was in the same location as the existing pier. M. Leach noted it was, but the proposed pier is a little larger than the existing, being 4 feet longer and 4 feet wider with a total length of 50 feet and a width of 12 feet.

M. Hicks asked how it would be constructed. G. Fortin noted a cofferdam would be used to remove and construct the new pier.

Jamie Sikora asked why it was wider. G. Fortin noted the proposed pier is two drilled shafts that are enclosed in the pier. Mike noted that since the original pier was constructed, dams have been constructed on the river upstream and downstream of the bridge. The downstream dam has raised the normal water level at the bridge. Construction of the pier similar to the original methods cannot be done due to the higher water levels. The method used for the pier construction allows for the higher water elevations.

Carol Henderson – NHF&G asked if dewatering would be conducted. G. Fortin noted that most of the work can be done without dewatering inside the cofferdam. C. Henderson asked for a copy of the mussel survey. Ron Crickard noted he would send a copy.

Matt Urban -NHDOT-BOE asked if mitigation is required for the additional impacts. L. Sommer asked about the permanent impacts relative to the riprap. M. Urban noted that impacts to the bank would occur, but the impacts are to areas that are currently riprap. G. Fortin noted that the photograph taken after the 1937 construction of the bridge indicates the banks were originally constructed with riprap. L. Sommer noted that mitigation would not be required for this project.

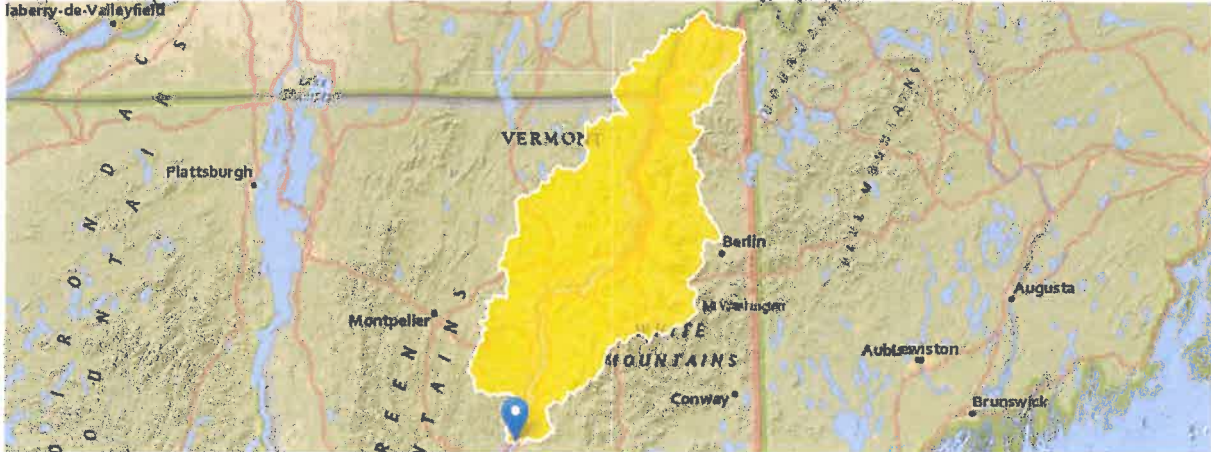
M. Hicks noted that most of the work on the piers is viewed as self mitigating by the Corps.

*This project has been previously discussed at the 3/19/2014 Monthly Natural Resource Agency Coordination Meeting.*



## StreamStats Report

**Region ID:** NH  
**Workspace ID:** NH20190416203719065000  
**Clicked Point (Latitude, Longitude):** 43.81197, -72.18307  
**Time:** 2019-04-16 16:37:34 -0400  
**laberry-de-Valleyfield**



### Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	3136.59	square miles
APRAVPRE	Mean April Precipitation	3.124	inches
WETLAND	Percentage of Wetlands	3.7636	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	3.87	feet per mi

### General Disclaimers

The delineation point is in an exclusion area. WARNING! The Connecticut River is regulated. The regression equations are not applicable to this location

### Peak-Flow Statistics Parameters (100 Percent (3140 square miles) Peak Flow Statewide SIR2008 5206)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	3136.59	square miles	0.7	1290
APRAVPRE	Mean April Precipitation	3.124	inches	2.79	6.23
WETLAND	Percent Wetlands	3.7636	percent	0	21.8
CSL10_85	Stream Slope 10 and 85 Method	3.87	feet per mi	5.43	543

### Peak-Flow Statistics Disclaimers (100 Percent (3140 square miles) Peak Flow Statewide SIR2008 5206)

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

### Peak-Flow Statistics Flow Report (100 Percent (3140 square miles) Peak Flow Statewide SIR2008 5206)

Statistic	Value	Unit
2 Year Peak Flood	34300	ft <sup>3</sup> /s

Statistic	Value	Unit
5 Year Peak Flood	44200	ft <sup>3</sup> /s
10 Year Peak Flood	51800	ft <sup>3</sup> /s
25 Year Peak Flood	60900	ft <sup>3</sup> /s
50 Year Peak Flood	68100	ft <sup>3</sup> /s
100 Year Peak Flood	76700	ft <sup>3</sup> /s
500 Year Peak Flood	95500	ft <sup>3</sup> /s

*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/>)**

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.3.0



**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 101.74 defines practicable as *available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.*)

This document addresses compliance with Env-Wt 900 “Stream Crossings”. The Connecticut River has a watershed area of 276 square miles which makes this bridge a Tier 3 stream crossing. The project involves rehabilitating the existing steel truss bridge. As discussed at the March 20, 2019 NHDOT Natural Resources meeting at the NHDOT office in Concord, the project involves rehabilitating the existing historic bridge structure, which includes removal and replacement of the existing pier located in the river. The work includes reconstruction of the rockfill slopes in front of the abutment walls. The final grades after reconstruction are intended to meet the existing grades. The work will also involve temporary bank impacts and temporary trestles placed in the river to allow the bridge to be slid back to remove and replace the pier in the river. A temporary cofferdam will be used for the removal of the existing pier and replacement of the new pier. A Summary of the NHDOT Natural Resources meeting minutes has been provided with the wetland application.

The existing bridge passes the 100-year storm event. With the proposed improvements, including a new pier that is 358 SF larger than the existing, the bridge will pass the 100-year storm event with no measurable change in water surface elevation.

The rehabilitation of the existing bridge results in the least amount of construction and environmental impacts; and it is the least costly alternative relative to construction costs. The project did consider full replacement alternatives for replacement with without impact to historic integrity or replacement in another location downstream. While these alternative would be in compliance with the NH Stream Crossing Guidelines, they were dismissed due to the substantial increase in environmental and property impacts, utility impacts, significant construction constraints, as well as higher construction costs as compared to the proposed rehabilitation. Therefore, adhering to the requirements of a fully compliant crossing is not practicable.

The no build alternative will not address the existing bridge which is in ‘fair’ condition, and without any improvements its condition will continue to decline to poor, eventually forcing the bridge to be closed. Therefore, this alternative was rejected.

**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:

Env-Wt 904.09 Alternative Design  
TECHNICAL REPORT

(a) In accordance with the NH Stream Crossing Guidelines.

*The NH Stream Crossing Guidelines recommend that the crossing should be a span structure with a width of  $1.2 \times \text{Bankfull Width} + 2 \text{ feet}$ . The existing structure does not span the river. The proposed rehabilitation will retain the existing single pier design. **This criteria will not be met under the guidelines.***

(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 bed forms and streambed characteristics will remain the same as they are today upon completion of the project.*

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage.

*The project will restore the existing riprap under the bridge. **This criteria will not be met under the guidelines.***

(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 project does not change the current River channel alignment or gradient.*

(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 existing bridge passes the 100-year frequency and the bridge with the proposed improvements will continue to pass the 100-year storm event. No increases in flood staging are anticipated.*

(f) To simulate a natural stream channel.

*The project does not propose to alter the natural stream channel upon completion. Temporary impacts to the stream channel will occur during construction.*

(g) So as not to alter sediment transport competence.

*Sediment transport competence will not be altered under the project.*

**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;

*Sediment transport is accommodated by the existing bridge and will continue to be accommodated at this crossing.*

(b) Prevent the restriction of high flows and maintain existing low flows;

*High and low flows are accommodated at this crossing and will continue to be accommodated with the bridge improvements.*

Env-Wt 904.09 Alternative Design  
TECHNICAL REPORT

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;

*There will be no obstructions or disruptions to the movement of aquatic life indigenous to the waterbody beyond the duration of construction.*

(d) Not cause an increase in the frequency of flooding or overtopping of banks;

*The bridge improvements will not cause an increase in the frequency of flooding or overtopping of banks.*

(e) Preserve watercourse connectivity where it currently exists;

*Watercourse connectivity exists today and will continue to exist with the bridge improvements.*

(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;

*Not applicable to this project.*

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

*The existing bridge does not cause erosion, aggradation, or scouring upstream or downstream of the crossing, nor will it upon completion of construction. The existing riprap under the bridge will be restored upon completion of the project.*

(h) Not cause water quality degradation.

*The proposed bridge improvements will not cause water quality degradation. Erosion and sediment controls will be utilized during construction to protect water quality in the Connecticut River.*



NEW HAMPSHIRE NATURAL HERITAGE BUREAU  
NHB DATACHECK RESULTS LETTER

EXHIBIT D

**To:** Rebecca Martin, NH DOT  
7 Hazen Drive  
PO Box 483  
Concord, NH 03302

**From:** NH Natural Heritage Bureau

**Date:** 10/1/2018 (valid for one year from this date)

**Re:** Review by NH Natural Heritage Bureau of request submitted 9/28/2018

**NHB File ID:** NHB18-3028

**Applicant:** Ron Crickard

**Location:** Lyme

14460 High Parker Truss Bridge (Bridge 053/112) on East Thetford Rd over the Connecticut River between Thetford, Vt and Lyme, NH

**Project**

**Description:** 14460: NH DOT proposes a bridge rehabilitation project at the existing High Parker Truss Bridge (Bridge 053/112) on East Thetford Road over the Connecticut River between Thetford, Vt and Lyme, NH. The rehabilitation construction will be conducted over two seasons and will include repairs to the truss and floor system, rehabilitation of the two concrete abutments, and a complete replacement of the center pier.

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.

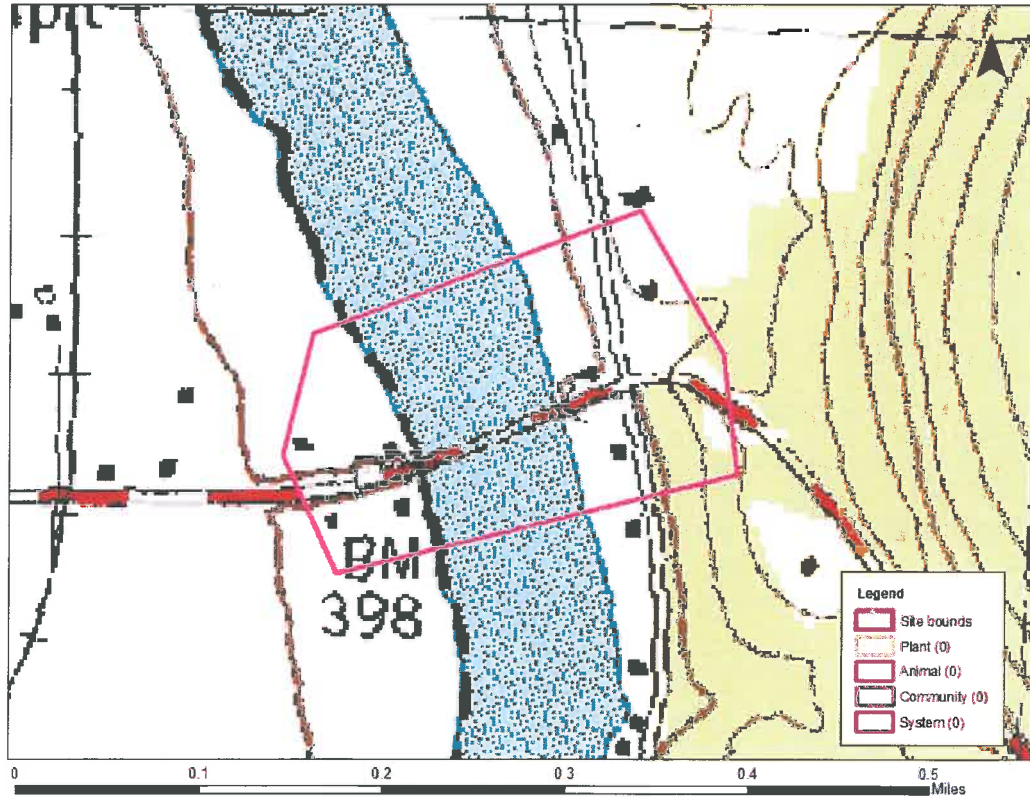
It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 9/28/2018, and cannot be used for any other project.





MAP OF PROJECT BOUNDARIES FOR: NHB18-3028

NHB18-3028





## 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:

September 05, 2018

Consultation Code: 05E1NE00-2018-SLI-2960

Event Code: 05E1NE00-2018-E-06990

Project Name: Lyme, NH- Thetford, VT Bridge Rehabilitation A000(394) 14460

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](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-2960

Event Code: 05E1NE00-2018-E-06990

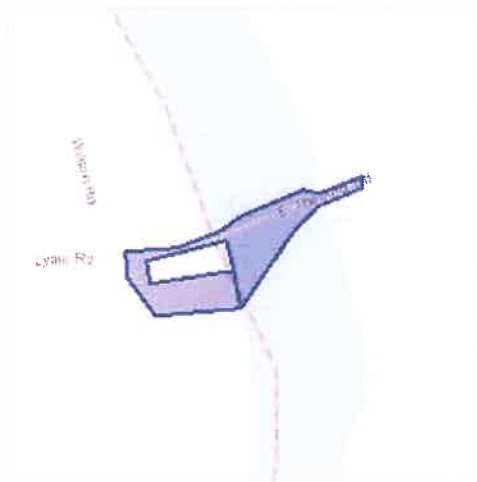
Project Name: Lyme, NH- Thetford, VT Bridge Rehabilitation A000(394) 14460

Project Type: TRANSPORTATION

Project Description: Proposed bridge rehabilitation project located between Lyme, NH and Thetford, VT over the Connecticut River.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.811777019000104N72.18331130907487W>



Counties: Grafton, NH | Orange, VT

## 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<sup>1</sup>, 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.

- 
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 <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

### Clams

NAME	STATUS
Dwarf Wedgemussel <i>Alasmidonta heterodon</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/784">https://ecos.fws.gov/ecp/species/784</a>	Endangered

### Critical habitats

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



*Victoria F. Sheehan*  
Commissioner

**THE STATE OF NEW HAMPSHIRE**  
**DEPARTMENT OF TRANSPORTATION**



*William Cass, P.E.*  
Assistant Commissioner

David Simmons  
U.S. Fish and Wildlife Service  
New England Field Office  
70 Commercial St., Suite 300  
Concord, NH 03301

October 2, 2018

RE: High Parker Truss Bridge (Bridge 053/112) Rehabilitation Project  
Lyme, NH – Thetford, VT State: 14460 Federal: A000(394)  
Consultation Code: 05E1NE00-2016-SLI-0603

Dear Mr. Simmons,

On behalf of the Federal Highway Administration (FHWA), the NH Department of Transportation (NH DOT) requests to initiate informal consultation with the United States Fish and Wildlife Service (USFWS) Northeast Region in accordance with Section 7 of the Endangered Species Act of 1973 (ESA) in regard to proposed construction of the Lyme, NH- Thetford, VT 14460 project. The project area is in habitat which has been identified as potential Dwarf Wedgemussel (*Alasmidonta heterodon*) habitat in the project's Official Species List and in previous Natural Heritage Bureau (NHB) Data Checks. In the most recent NHB Data Check for the project, a result of no impacts was returned to the Department 'although there was a NHB record ... present in the vicinity, we do not expect that it will be impacted by the proposed project.' Since the Dwarf Wedgemussel is suspected to have become extirpated from the project area, no effect on the species is anticipated. .

The New Hampshire Department of Transportation is proposing a bridge rehabilitation project at the existing High Parker Truss Bridge (Bridge 053/112) on East Thetford Road over the Connecticut River between Thetford, Vermont, and Lyme, New Hampshire. The rehabilitation construction will be conducted over two seasons and will include repairs to the truss and floor system, rehabilitation of the two concrete abutments, and a complete replacement of the center pier.

The proposed bridge rehabilitation work includes temporary and permanent in-water impacts around the center pier and temporary access area along the western bank downstream of the bridge. The existing concrete center pier will be demolished and removed and replaced. Best management practices will be employed throughout construction to protect the water quality of the Connecticut River.

The Information for Planning and Consultation (IPaC) tool was utilized to generate an Official Species List for the project area. The Official Species list includes the Northern Long-eared Bat and the Dwarf Wedgemussel, the Northern Long-eared Bat (NLEB) has been listed as threatened and the Dwarf Wedgemussel (DWM) has been listed as endangered in accordance with the Endangered Species Act. The NH DOT has coordinated with

the USFWS New England Field Office and has received a letter of concurrence (dated September 5, 2018) with the finding that the project may rely on the Indiana Bat and NLEB Programmatic Biological Opinion (PBO) and that the project will have no effect to the NLEB. A bridge inspection found no evidence of bat use at the project site.

Stantec Consulting Services, Inc. (Stantec) completed a freshwater mussel survey in the Connecticut River in Lyme, NH and Thetford, VT. The survey was conducted on August 15<sup>th</sup> and 16<sup>th</sup>, 2018, in accordance with a survey plan that was reviewed and approved by the New Hampshire Fish and Game (NHFG) Department. The survey area extended 50 meters (164 feet) upstream and 100 meters (328 feet) downstream of the centerline of the bridge, extending river-wide, from the Vermont shoreline to the New Hampshire shoreline. A total of three species were observed in the survey area. The most abundant species was Eastern elliptio. No Dwarf Wedgemussels were observed in the survey area.

The Natural Heritage Bureau Data Check for the project area indicated that there are only historical records in the project area and that several field surveys over the past 15 years by the Vermont Heritage Bureau failed to locate Dwarf Wedgemussel and the species is 'presumed extirpated'.

Also, in a freshwater mussel survey completed by Biodiversity conducted at 17 different study sites from Brattleboro in southern Vermont, upriver to Bloomfield, in northern Vermont, the project area was included as one of the survey sites. The project includes a snorkel survey conducted within the project site for 200 meters off the eastern bank of the river, which included areas upstream and downstream of the project site (including a lateral area out to the second abutment). Nedeau reported the substrate types in the survey area consisting of sand, silt, and clay with depths up to 15-20 feet deep. Only snorkel survey methods were employed in the 2005 survey. In the survey report, Nedeau commented that "deep areas were poorly surveyed" and due to the deep water and thick vegetation "SCUBA (is) necessary" at this site. No Dwarf wedgemussel were found during the survey of the project area. Although SCUBA was not utilized during the 2005 survey, the lack of presence of the Dwarf wedgemussel in the 2005 survey and in the surveys completed by Vermont Heritage Bureau corroborate the finding of the Stantec 2018 summer survey.

Given the lack of presence of the species indicated in past surveys and the survey completed by Stantec in the summer of 2018, the presence of Dwarf Wedgemussel in the project area seems unlikely. Therefore, since the impacts of the project will be localized to the bridge and will not impact other areas of the Connecticut River and no Dwarf Wedgemussels are anticipated to be present at the time of the project construction and as no Dwarf Wedgemussels are thought to be using the habitat, the Department has determined that a finding of no effect on the Dwarf Wedgemussel for this project is appropriate. I am writing to respectfully request your concurrence with this determination. Please feel free to contact me with any questions about the project.

Sincerely,



Ronald Crickard  
Chief, Project Management  
Bureau of Environment  
NH Department of Transportation



Enclosures

c.c.: Maria Tur, Endangered Species Biologist, USFWS New England Field Office  
Jamie Sikora, NH Division Environmental Programs Manager, FHWA  
Michael Hicks, Project Manager, Army Corps of Engineers  
Joseph Adams, Project Manager, NHDOT (email)

Nedeau, E. 2006. Freshwater mussels of the upper Connecticut River, with emphasis on the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*). Biodrawvversity. Amherst, MA. Field work completed August; final report submitted January 30, 2006.



## 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>

IPaC Record Locator: 507-13845812

September 05, 2018

Subject: Consistency letter for the 'Lyme, NH- Thetford, VT Bridge Rehabilitation A000(394) 14460' project (TAILS 05E1NE00-2018-R-2960) under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated to verify that the **Lyme, NH- Thetford, VT Bridge Rehabilitation A000(394) 14460** (Proposed Action) may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action will have no effect on the endangered Indiana bat (*Myotis sodalis*) or the threatened Northern long-eared bat (*Myotis septentrionalis*). If the Proposed Action is not modified, **no consultation is required for these two species.**

**For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities:** If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency for the Proposed Action accordingly.

The following species may occur in your project area and **are not** covered by this determination:

- Dwarf Wedgemussel, *Alasmidonta heterodon* (Endangered)

## **Project Description**

The following project name and description was collected in IPaC as part of the endangered species review process.

### **Name**

Lyme, NH- Thetford, VT Bridge Rehabilitation A000(394) 14460

### **Description**

Proposed bridge rehabilitation project located between Lyme, NH and Thetford, VT over the Connecticut River.



## Determination Key Result

Based on the information you provided, you have determined that the Proposed Action will have no effect on the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for these two species.

## Qualification Interview

1. Is the project within the range of the Indiana bat<sup>[1]</sup>?

[1] See [Indiana bat species profile](#)

**Automatically answered**

*No*

2. Is the project within the range of the Northern long-eared bat<sup>[1]</sup>?

[1] See [Northern long-eared bat species profile](#)

**Automatically answered**

*Yes*

3. Which Federal Agency is the lead for the action?

*A) Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction<sup>[1]</sup> activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

[1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

*No*

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces<sup>[1]</sup>?

[1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

*No*

6. Does the project include *any* activities **within** 0.5 miles of an Indiana bat and/or NLEB hibernaculum<sup>[1]</sup>?

[1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

*No*

7. Is the project located **within** a karst area?

*No*

8. Is there *any* suitable<sup>[1]</sup> summer habitat for Indiana Bat or NLEB **within** the project action area<sup>[2]</sup>? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the [national consultation FAQs](#).

*No*

9. Does the project include maintenance of the surrounding landscape at existing facilities (e.g., rest areas, stormwater detention basins)?

*No*

10. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

*No*

11. Does the project include slash pile burning?

*No*

12. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

*Yes*

13. Is there *any* suitable habitat<sup>[1]</sup> for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's current [summer survey guidance](#) for our current definitions of suitable habitat.

*Yes*

14. Has a bridge assessment<sup>[1]</sup> been conducted **within** the last 24 months<sup>[2]</sup> to determine if the bridge is being used by bats?

[1] See [User Guide Appendix D](#) for bridge/structure assessment guidance

[2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

*Yes*

SUBMITTED DOCUMENTS

- [mem\\_lyme\\_thetford\\_bridge\\_nleb\\_20180828.pdf](https://ecos.fws.gov/ipac/project/RQ5RL2LBOZE4XNWUGYXANETSJI/projectDocuments/13845755) <https://ecos.fws.gov/ipac/project/RQ5RL2LBOZE4XNWUGYXANETSJI/projectDocuments/13845755>

15. Did the bridge assessment detect *any* signs of bats roosting in/under the bridge (bats, guano, etc.)?

Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

*No*

16. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

*No*

17. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

*No*

18. Will the project involve the use of **temporary** lighting *during* the active season?

*No*

19. Will the project install new or replace existing **permanent** lighting?

*No*



## Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on March 16, 2018. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's [February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects](#). The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.





**Victoria F. Sheehan**  
Commissioner

**THE STATE OF NEW HAMPSHIRE**  
DEPARTMENT OF TRANSPORTATION



**William Cass, P.E.**  
Assistant Commissioner

**LYME, NH – THETFORD, VT**  
**A000(394)**  
**14460**  
RPR 5493

**Adverse Effect Memo**

Pursuant to meetings and discussions in August 2014, April 2015, September 2015, and December 2016 and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of the Federal Highway Administration, the Vermont Agency of Transportation, the New Hampshire Department of Transportation, and the NH Division of Historical Resources have coordinated the identification and evaluation of historic and archeological resources associated with the plans to rehabilitate the 1937 Parker truss bridge that carries VT Route 113 (East Thetford Road) over the Connecticut River between the Towns of Lyme, New Hampshire and Thetford, Vermont. The Vermont Agency of Transportation (VTrans) has reviewed this project according to the standards and procedures detailed in the 2000 Programmatic Agreement (PA) regarding Implementation of the Federal Highway Administration's (FHWA) Federal-Aid Highway Program in Vermont and the corresponding Manual of Standards and Guidelines (Manual).

Project Description:

The project consists of the rehabilitation of the Lyme-East Thetford Bridge No. 053/112 that carries VT Route 113 (East Thetford Road) over the Connecticut River between Lyme, New Hampshire and East Thetford, Vermont. The project will encompass two construction seasons and traffic will be detoured around the site. The undertaking will:

- Replace the reinforced concrete pier
- Replace the existing end floor beams, exterior stringers, and lower lateral cross bracing
- Replace the existing paved concrete deck with a bare (unpaved) reinforced concrete deck to increase the live load capacity of the bridge
- Rehabilitate the fixed bearings and replace the expansion bearings
- Replace the existing bridge rail and steel curbing with standard NHDOT T-3 crash tested rail system mounted on concrete curb
- Repair deteriorated concrete in the abutments
- Clean and paint the truss
- Paint railing to match the truss color
- Stain the curb concrete to match (as close as possible) the color of the truss (see mitigation measures below)

The area of potential effect includes the bridge and approaches as well as a truck turnaround located within the southwestern quadrant of the project area in an open and active farm field adjacent to the Connecticut River.

Analysis:

Based on a review pursuant to 36 CFR 800.4 of the architectural and/or historical significance of resources in the project area, we agree that the Lyme-Thetford bridge (053/112) is eligible for listing on the National Register of Historic Places. A detailed description of the bridge (Individual Inventory form, LME0001) is on file at the New Hampshire Division of Historical Resources (NHDHR) in Concord, New Hampshire. Also, the Lyme-Thetford Bridge is being nominated for listing on the National Register of Historic Places and the nomination form is under review by the NHDHR.

An Individual Inventory form was completed on the house located at 327 River Road in Lyme, New Hampshire, also known as the Toll House. FHWA found the resource not eligible for the National Register of Historic Places due to a lack of integrity. NHDHR recommended the resource eligible for the National Register of Historic Places under Criterion A as a rare surviving building type in New Hampshire.

The VTrans Historic Preservation Officer found the Smith & Webster house, located at 22 VT Route 113, eligible for the National Register of Historic Places under Criterion A and C. The Bailey House located at 37 Route 113 was determined not eligible for the National Register.

A Phase I Archaeological Study was completed by Monadnock Archaeological Consulting (MAC), LLC in April, 2016 for the proposed construction temporary access location on lot 25 in the southwestern quadrant of the project area. MAC archaeologists performed a systematic walkover of the field and excavated 49 shovel test pits in within the proposed truck turnaround area. They found a total of two artifacts that can be attributed to the Pre-Contact time period. These were a quartz core and an Otter Creek Point. This site was given the number VT-OR-0111. Additional test pits at close intervals failed to produce any further artifacts. MAC concluded that although a site was discovered at this location, the low density and widely scattered nature combined with the failure to produce any evidence of sustained occupation (hearth features, manufacturing areas, etc. suggests that this site does not meet the criteria for significance and further study is not warranted (End of Field report dated May 12, 2016). The VTrans Archaeology Officer concurred with the recommendations in the Phase I report and determined that no additional archaeology was necessary for the VT quadrants. A Phase IB archaeological assessment was recommended for the south east quadrant of the bridge in New Hampshire. This assessment will be completed once landowner permissions have been gained, if possible. All necessary phases of archaeology will be completed.

Public Consultation:

Outreach letters were sent by the NHDOT to the Lyme Heritage Commission, Lyme Historical Society, Thetford Historical Society, Lyme Conservation Commission, Thetford Conservation Commission, the Connecticut River Joint Commissions, and the New Hampshire Preservation Alliance. One consulting party was identified, Timothy Cook of the Lyme Heritage Commission. Public informational meetings were held on July 23, 2014 in New Hampshire and October 22, 2015 in Vermont.

Determination of Effect:

Applying the criteria of effect at 36 CFR 800.5, we have determined that the project will have an adverse effect on the bridge due to the removal of the steel bridge rail and steel curb plates, and replacement of the concrete pier. All work is proposed to be within the Right-of-Way and will not impact adjacent resources. Temporary access outside the right-of way in Vermont will not impact adjacent resources.

Mitigation Measures:


Appropriate mitigation for the removal of the steel bridge rail, steel curb plates, and concrete pier of the eligible bridge will be recorded in a Memorandum of Agreement. Proposed mitigation includes archival documentation of the bridge (VT Standard Mitigation Measure #1), replication of features as possible

for the rail and steel curb (VT Standard Mitigation Measure #16), and compatible design of the new bridge pier (VT Standard Mitigation Measure #19). While the replication of the steel curb is not possible, the contractor will present a sample stained concrete to NHDOT, VTtrans, NH SHPO and FHWA for review and approval prior to staining all the curbs on the bridge.

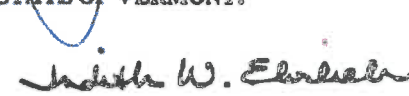
Section 4(f) (to be completed by FHWA)	There Will Be:	<input type="checkbox"/> No 4(f);	<input checked="" type="checkbox"/> Programmatic 4(f);	<input type="checkbox"/> Full 4 (f); or
	<input type="checkbox"/> A finding of <i>de minimis</i> 4(f) impact as stated: In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with 23 CFR 774.3, FHWA intends to, and by signature below, does make a finding of <i>de minimis</i> impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the <i>de minimis</i> findings. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.			


In accordance with the Advisory Council's regulations, consultation will continue, as appropriate, as this project proceeds.

STATE OF NEW HAMPSHIRE:

 2/28/17  
 Patrick Bauer, Administrator  
 Federal Highway Administration  
 Date

STATE OF VERMONT:

 02/27/2017  
 Judith Williams Ehrlich  
 Historic Preservation Officer  
 VT Agency of Transportation  
 Date

 2-27-17  
 Jeannine Russell-Pinkham  
 Archaeology Officer  
 VT Agency of Transportation  
 Date

Concurred with by:

 3/2/17  
 Elizabeth H. Muzzey  
 State Historic Preservation Officer  
 NH Division of Historical Resources  
 Date

 2/1/2017  
 Jill Edelmann  
 Cultural Resources Manager  
 NH Department of Transportation  
 Date

/attachments:

- Project plans
- Location map

c.c. Jamie Sikora, FHWA                      Rob Sikora, FHWA  
 Ron Crickard, NHDOT                  Joe Adams, NHDOT  
 Chris St. Louis, NHDHR                Mike Leach, Stantec  
 Dan Landry, VTtrans

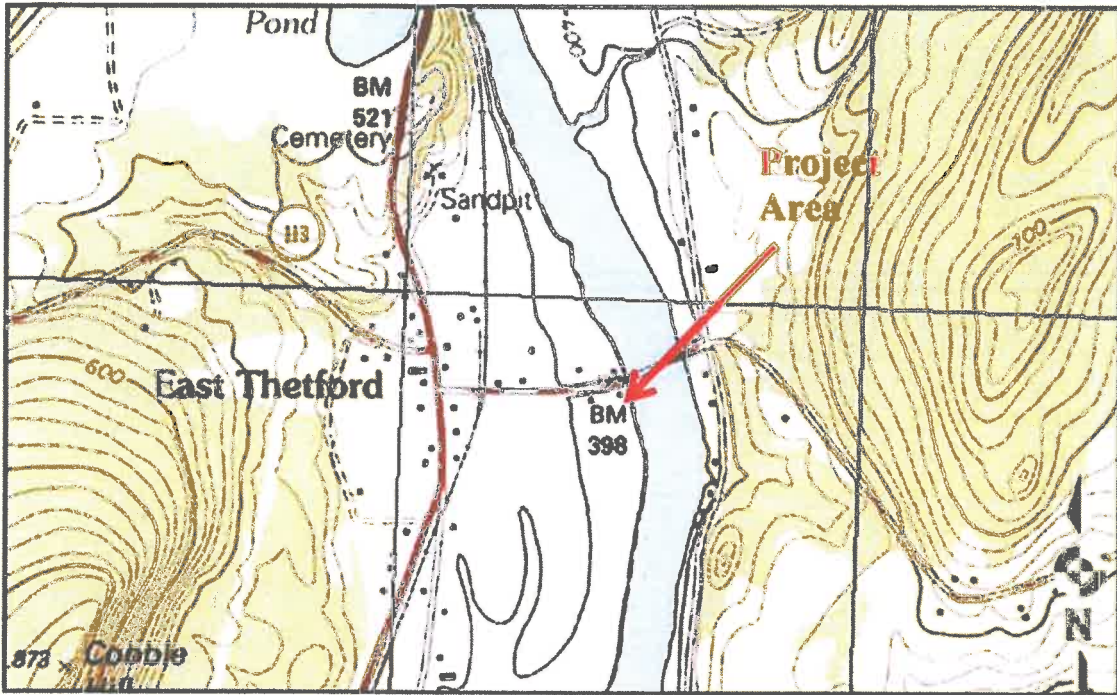


Figure 1: Project Area illustrating location of proposed truck turnaround access on VT side

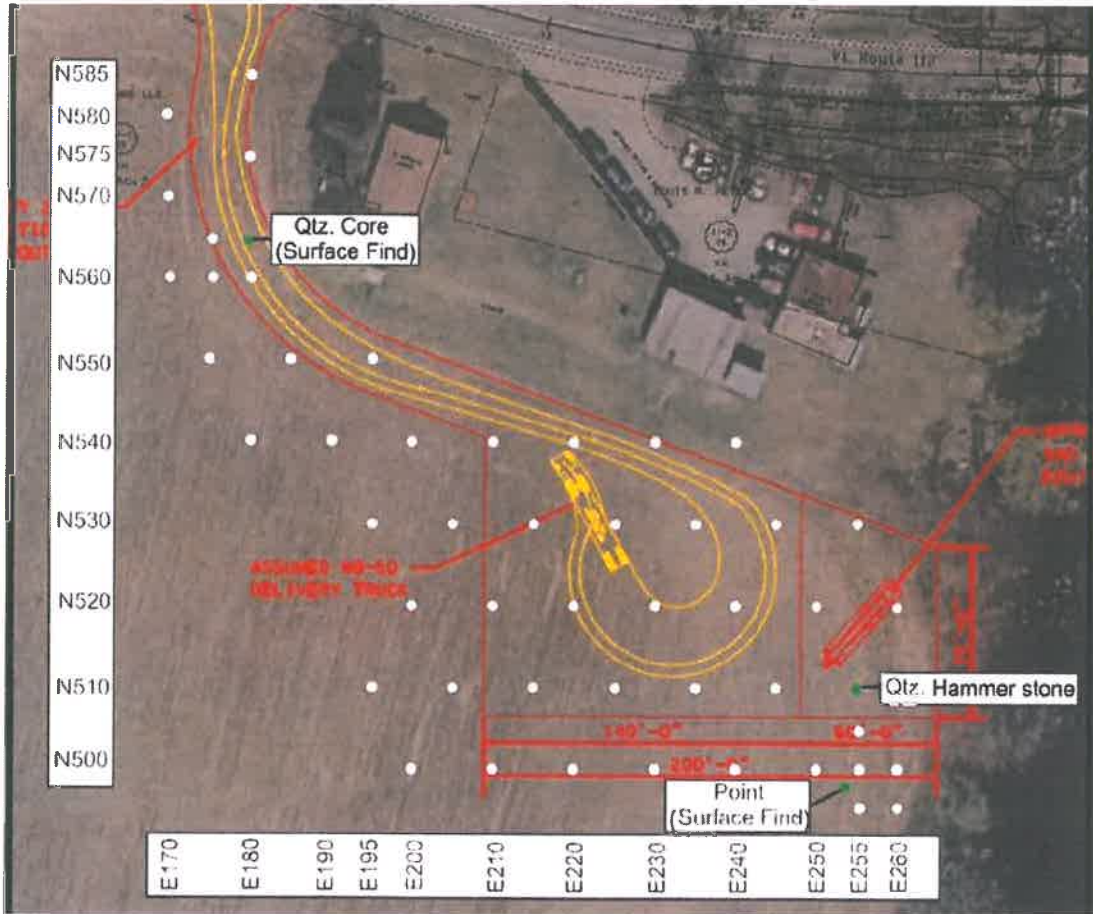




Figure 2: Aerial view illustrating location of archaeological test pits for the truck turnaround (VT side, SW quadrant. MAC report 5-12-16)



Figure 3: Existing bridge crossing, view to the east (MAC report, 5-12-16)

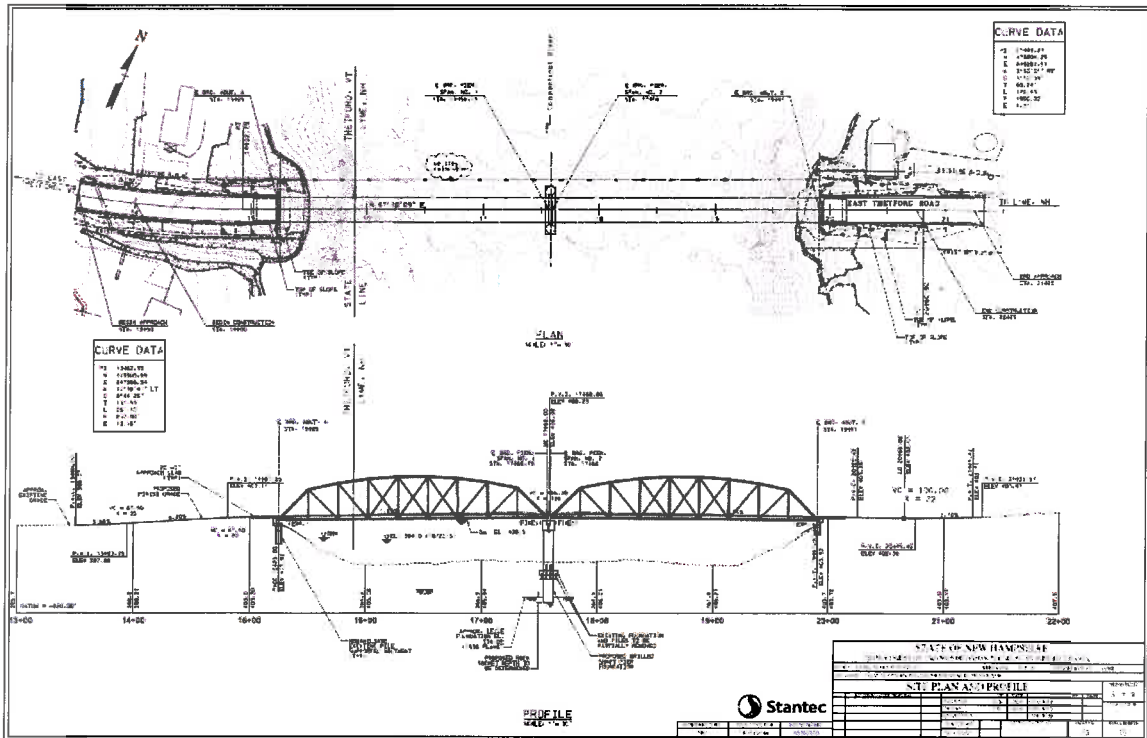


Figure 4: Project plans – plan view and vertical bridge view



Lyme, NH -- Thetford, VT  
A001(394)  
14460

**MEMORANDUM OF AGREEMENT  
AMONG  
THE FEDERAL HIGHWAY ADMINISTRATION,  
THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION,  
THE VERMONT AGENCY OF TRANSPORTATION,  
AND THE  
NEW HAMPSHIRE STATE HISTORIC PRESERVATION OFFICER**

**REGARDING THE REHABILITATION OF THE EAST THETFORD ROAD BRIDGE  
OVER THE CONNECTICIT RIVER BETWEEN LYME, NEW HAMPSHIRE AND  
THETFORD, VERMONT**

**WHEREAS**, the Federal Highway Administration (FHWA), in cooperation with the New Hampshire Department of Transportation (NHDOT) and the Vermont Agency of Transportation (VTrans) plans to provide funds for the rehabilitation of the bridge that carries VT Route 113 (East Thetford Road) over the Connecticut River between Lyme, New Hampshire and East Thetford, Vermont; and

**WHEREAS**, the VTrans has reviewed this project according to the standards and procedures detailed in the 2000 Programmatic Agreement (PA) regarding Implementation of the FHWA's Federal-Aid Highway Program in Vermont and the corresponding Manual of Standards and Guidelines (Manual); and

**WHEREAS**, the undertaking consists of the rehabilitation of the Lyme-East Thetford NH Bridge No. 053/112, including replacing the reinforced concrete pier, replacing the existing reinforced concrete deck, replacing floor framing members, rehabilitating or replacing bridge bearings and replacing the expansion joints, replacing the existing bridge rail, removing the existing steel curbing and replacing with a concrete curb, repairing the concrete abutments and cleaning and painting the truss structure; and

**WHEREAS**, FHWA has defined the undertaking's area of potential effect (APE) to include the road right-of-way 100' either side of the bridge, with some temporary construction impacts in Vermont for staging and river access; and

**WHEREAS**, FHWA has determined that the undertaking will have an adverse effect on the Lyme-Thetford bridge (NH Bridge No. 053/112), which is eligible for listing in the National Register of Historic Places, and has consulted with the New Hampshire State Historic Preservation Officer (NH SHPO) pursuant to 36 C.F.R. part 800, of the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108); and

Lyme, NH – Thetford, VT  
 A001(394)  
 14460

**WHEREAS**, FHWA has consulted with Federally-recognized Indian tribes (Tribes) with ancestral lands in Vermont about this project, has requested their comments, and has taken any comments received into account; and

**WHEREAS**, NHDOT has reached out to the abutting towns and other interested groups via letters and at public meetings, on July 23, 2014 in Lyme and October 22, 2015 in Thetford, to seek Consulting Party status; one Consulting Party, Tim Cook of the Lyme Heritage Commission, has been identified; and

**WHEREAS**, in accordance with 36 C.F.R. § 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

**NOW, THEREFORE**, FHWA, NHDOT, VTrans and the NH SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

#### STIPULATIONS

FHWA shall ensure that the following measures are carried out:

- A.** Archival documentation of the bridge (The following meets VT Standard Mitigation Measure #1 per their PA)
  - a. One archival document shall be completed by a 36 CFR 61-qualified architectural historian to Historic American Engineering Record (HAER) standards, format to be determined by the National Park Service (NPS).
  - b. A digital draft HAER document will be submitted to NHDOT for review and comment, 30 days. Comments will be addressed and the draft will then be sent to NH SHPO (paper copy) and VTrans (digital) for review and comment, 45 days. One draft copy will then be provided by NHDOT, on behalf of FHWA, to NPS for review.
  - c. One final copy completed to HAER standards shall be submitted to NHDOT/FHWA for submission to the National Park Service. Two copies printed on archival paper and a digital PDF shall be submitted to NHDOT for distribution to NH SHPO (hard copy), VTrans (hard copy), and two local repositories (digital).
  
- B.** Compatible replacement of features, as possible (The following meets VT Standard Mitigation Measure #16)
  - a. Bridge rail

Lyme, NH – Thetford, VT  
 A001(394)  
 14460

- i. NHDOT will replace the existing bridge rail with standard NHDOT T-3 crash tested rail system mounted on concrete curb.
    - ii. The new bridge rail will be painted/coated to match the bridge trusses. The Towns of Lyme and Thetford will be consulted on the paint color; to be informed by research into the original color of the bridge.
  - b. Steel curbing
    - i. As the existing steel curbing cannot be replicated, the possibility of staining the concrete curb to match the truss will be explored to minimize the visual impacts. The contractor will provide a sample stained concrete to NHDOT, VTrans, FHWA and NH SHPO for review, 15 days. NHDOT and VTrans will approve the staining prior to any concrete staining on the bridge.
- C. Compatible design of the new bridge pier per VT Standard Mitigation Measure #19
  - a. The existing concrete bridge pier will be replaced with a similarly configured concrete pier that will reduce the visual impact of the new pier.
- D. There will be no ground disturbance on the privately owned parcel southeast of the bridge. This parcel was determined archaeologically sensitive, however was not tested. Should construction and/or staging need to occur in the area, construction fencing should be placed at the property line. Should impacts need to occur on the southeast parcel, all phases of archaeology will be completed.

#### IV. DURATION

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, FHWA may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VIII below.

#### V. POST-REVIEW DISCOVERIES

**Vermont:** In the event of discovery of a previously unidentified site or human remains in Vermont during project construction the following stipulations for the Vermont side will be followed:

- a. If previously unidentified archaeological sites are discovered during project construction, that portion of the project will stop immediately. The Resident Engineer will notify the VTrans Archaeology Officer. No further construction will proceed until the requirements for 36 CFR 800 have been satisfied.
- b. If human remains or ceremonial objects are discovered either during archaeological excavation or during construction, the project will stop immediately and procedures described in the Vermont Statutes including 13 V.S.A. § 3761, Unauthorized Removal of

Lyme, NH – Thetford, VT  
 A001(394)  
 14460

Human Remains, and 18 V.S.A. § 5212b, Unmarked Burial Sites Special Fund and reporting of Unmarked Burial Sites shall be followed. Coordination between VTrans and the VT SHPO will follow the Advisory Council's Policy Statement on Treatment of Human Remains and Grave Goods, (1998). All excavation in the vicinity will cease immediately. Remains will be left in place and protected and will follow the procedure below:

*“When an unmarked burial site is first discovered, the discovery shall be reported immediately to a law enforcement agency. If, after completion of an investigation pursuant to section 5205 of this title, a law enforcement agency determines that the burial site does not constitute evidence of a crime, the law enforcement agency shall immediately notify the state archaeologist who may authorize the appropriate action regarding the unmarked burial site (18 V.S.A. § 5212b(f))”*

- c. If the human remains are identified as Native American, then a treatment and reburial plan will be developed in full consultation with the appropriate Native American group(s) in compliance with the requirements of NAGPRA.

**New Hampshire:** In the event of discovery of a previously unidentified site or human remains in New Hampshire during project construction, the following stipulations for the New Hampshire side will be followed:

- a. If human remains are discovered during project construction, that portion of the project will stop immediately. The Resident Engineer will notify the county medical examiner and the state archaeologist at NH SHPO as per RSA 227-C:8-a-II as well as the NHDOT Cultural Resources Program Specialist/Archaeologist or Cultural Resources Program Manager so that the proper steps may be taken by these agencies to determine proper procedures and identify the appropriate notification process. Cover and protect the burial. Investigations will not continue until verbal notification is provided by the NHDOT. This procedure must be followed. If the human remains are determined by the medical examiner to be subject to the provisions of RSA 227-C:8-b then FHWA with NHDOT and NH SHPO shall be responsible for complying with RSA 227-C:8 and NAGPRA, not the investigating archaeologist.
- b. When the burial is Native American whether or not the group is federally recognized, RSA 227-C:8-d directs the State Archaeologist to immediately notify the leaders, officials, or spokesperson of Native American tribes or groups to determine the appropriate treatment of the burial (see also RSA 227-C:8-g). In addition, a treatment and reburial plan will be developed in full consultation with the appropriate Native American group(s) in compliance with the requirements of NAGPRA.
- c. When the burial is not Native American, the State Archaeologist and often the NHDOT Bureau of Right of Way seek identification of descendants to determine wishes for disposition of the burial (see also RSA 227-C:8-e and 8-g). If skeletal analysis is deemed appropriate, this study shall be undertaken by a qualified analyst in consultation with the NH SHPO and NHDOT (see RSA 227-C:8-f).

Lyme, NH – Thetford, VT  
A001(394)  
14460

- d. If unanticipated archaeological features and artifacts are discovered, that portion of the project will stop immediately. The Resident Engineer will notify the NHDOT Cultural Resources Program Specialist/Archaeologist or Cultural Resources Program Manager and the State Archaeologist at the NH SHPO so that the proper steps may be taken by these agencies to determine proper procedures. Regulation 36 CFR 800.13 (b) states that if historic properties are located after the conclusion of the Section 106 process as “post review discoveries,” for example those arising during construction, the federal agency official will make every reasonable effort to avoid, minimize, or mitigate the effect of the project on the properties. In such situations in which the NHDOT must recover archaeological remains in a short time period and they do not involve human remains, the identified features and artifact concentrations will be recovered following the guideline for Phase III excavations as closely as possible. Construction monitoring of the affected area may follow this recovery if the type of archaeological deposit, landscape, vegetation, and project allow this approach to be effective.

## **VI. MONITORING AND REPORTING**

Each year following the execution of this MOA until it expires, is terminated, or completed NHDOT shall provide all parties to this MOA a summary report detailing work undertaken pursuant to its terms. Such report shall also include any scheduling changes proposed, any problems encountered, and any disputes and objections received in FHWA's efforts to carry out the terms of this MOA.

## **VII. DISPUTE RESOLUTION**

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FHWA shall consult with such party to resolve the objection. If FHWA determines that such objection cannot be resolved, FHWA will:

A. Forward all documentation relevant to the dispute, including FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. FHWA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FHWA may make a final decision on the dispute and proceed



Lyme, NH – Thetford, VT  
A001(394)  
14460

accordingly. Prior to reaching such a final decision, FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

#### VIII. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

#### IX. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VIII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.


Once the MOA is terminated, and prior to work continuing on the undertaking, FHWA must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. FHWA shall notify the signatories as to the course of action it will pursue.


Execution of this MOA by the FHWA, NHDOT, VTrans and NH SHPO and implementation of its terms evidence that FHWA has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

Lyme, NH - Thetford, VT  
A001(394)  
14460  
RPR5493  
SIGNATORIES:

STATE OF NEW HAMPSHIRE:

for  07/12/2017  
Patrick Bauer, Administrator Date  
Federal Highway Administration

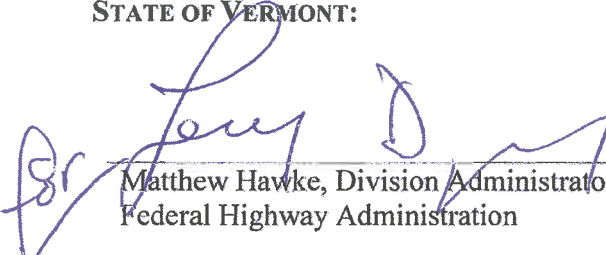
 6/29/17  
Elizabeth H. Muzzey Date  
State Historic Preservation Officer  
NH Division of Historical Resources

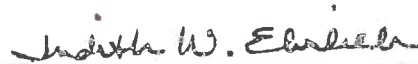
 7/6/17  
Victoria F. Sheehan Date  
Commissioner  
NH Department of Transportation

Lyme, NH – Thetford, VT  
A001(394)  
14460

**SIGNATORIES:**

**STATE OF VERMONT:**

 Matthew Hawke, Division Administrator  
Federal Highway Administration      7/14/17  
Date

 Judith Williams Ehrlich      7/13/2017  
Date  
VT Historic Preservation Officer  
VT Agency of Transportation

 Jeannine Russell-Pinkham      7-13-17  
Date  
VT Archaeology Officer  
VT Agency of Transportation



**US Army Corps  
of Engineers**®  
New England District

**New Hampshire General Permits (GPs)  
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 GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

<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 <a href="http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm">http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm</a> to determine if there is an impaired water in the vicinity of your work area.*	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 SAS, special wetlands. 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://www2.des.state.nh.us/nhb_datacheck/">https://www2.des.state.nh.us/nhb_datacheck/</a> . The book <a href="#">Natural Community Systems of New Hampshire</a> also contains specific information about the natural communities found in NH.		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?	UNKNOWN	
2.7 What is the area of the proposed fill in wetlands?	200 SF	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?	UNKNOWN	
<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://www2.des.state.nh.us/nhb_datacheck/">https://www2.des.state.nh.us/nhb_datacheck/</a> USFWS IPAC website: <a href="https://ecos.fws.gov/ipac/location/index">https://ecos.fws.gov/ipac/location/index</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="http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm">www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm</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 21?	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 Request for Project Review (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 11 GC 8(d) of the GP document**	X	

\*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

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



**Exhibit K**

**Lyme, NH – Thetford, VT 14460 - Bridge Rehabilitation Wetlands Permit Application**



Photo 1 – View from NH shoreline downstream of bridge looking northwesterly and upstream at areas of proposed temporary trestles during reconstruction.



Photo 2 – View from VT shoreline looking easterly toward pier and NH shoreline at proposed areas of temporary trestles during reconstruction.

**Exhibit K**

**Lyme, NH – Thetford, VT 14460 - Bridge Rehabilitation Wetlands Permit Application**



Photo 3 – View from top of existing bridge pier looking easterly toward NH shoreline and proposed temporary trestle location adjacent to pier and temporary bank impacts to relocate bridge during reconstruction.



Photo 4 – View from NH shoreline westerly toward VT shoreline of area of proposed temporary trestle location and access from VT. VT access to be in shoreline tree line gap seen in lower left of photo.



**Exhibit K**

**Lyme, NH – Thetford, VT 14460 - Bridge Rehabilitation Wetlands Permit Application**



Photo 5 – View from NH shoreline looking northerly at existing river bank and bridge abutment to be temporary impacted to temporarily relocate bridge during pier replacement.



Photo 6 – View from VT shoreline looking westerly at existing river bank and bridge abutment to be temporary impacted to temporarily relocate bridge during pier replacement.

**Exhibit K**

**Lyme, NH – Thetford, VT 14460 - Bridge Rehabilitation Wetlands Permit Application**



Photo 7 – Closeup view looking westerly at the NH Side of the existing deteriorated pier.



Photo 8 – Closeup view looking easterly at the VT side of the existing deteriorated pier.



## Exhibit K

### Lyme, NH – Thetford, VT 14460 - Bridge Rehabilitation Wetlands Permit Application



Photo 9 – View looking downstream of the westerly portion of the existing bridge and proposed area of temporary trestle during bridge and pier reconstruction located in NH and VT and temporary VT river bank impact for temporary bridge relocation.



Photo 10 – View looking downstream of the easterly portion of the existing bridge and proposed area of temporary trestle adjacent to existing pier during pier reconstruction and temporary NH river bank impacts for temporary bridge relocation.



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
55 Great Republic Drive  
Gloucester, MA 01930-2276

JUN 28 2017

Jennifer McCarthy  
Chief, Regulatory Division  
US Army Corps of Engineers  
New England District  
696 Virginia Road  
Concord, MA 01742-2751

RE: Essential Fish Habitat Consultations on the Connecticut River in Vermont and New Hampshire

Dear Ms. McCarthy: :

We are writing in regards to the Essential Fish Habitat (EFH) Consultation process in the States of Vermont and New Hampshire within the Connecticut River. As you know, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require Federal agencies to consult with one another on activities that may have an adverse effect to EFH. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH Assessments and generally outlines each agencies obligations in this consultation procedure.

In 1998, the New England Fishery Management Council designated EFH for Atlantic Salmon (*salmo salar*) throughout its historic range in New England, including the Connecticut River Watershed in the States of Vermont and New Hampshire. At this time, anadromous Atlantic Salmon are no longer present in the Connecticut River or its tributaries within Vermont and New Hampshire. Therefore, we are not requiring EFH consultations for activities in the Connecticut River and its tributaries within Vermont and New Hampshire. However, we maintain that permanent impacts to diadromous fish habitat be avoided and minimized to ensure viable habitat should the status of the species change. Should this occur, we will notify your office to reassess the EFH consultation process in the Connecticut River in Vermont and New Hampshire.

Should you wish to discuss this matter further, please contact Christopher Boelke at 978-281-9131 or [Christopher.boelke@noaa.gov](mailto:Christopher.boelke@noaa.gov)

Sincerely,

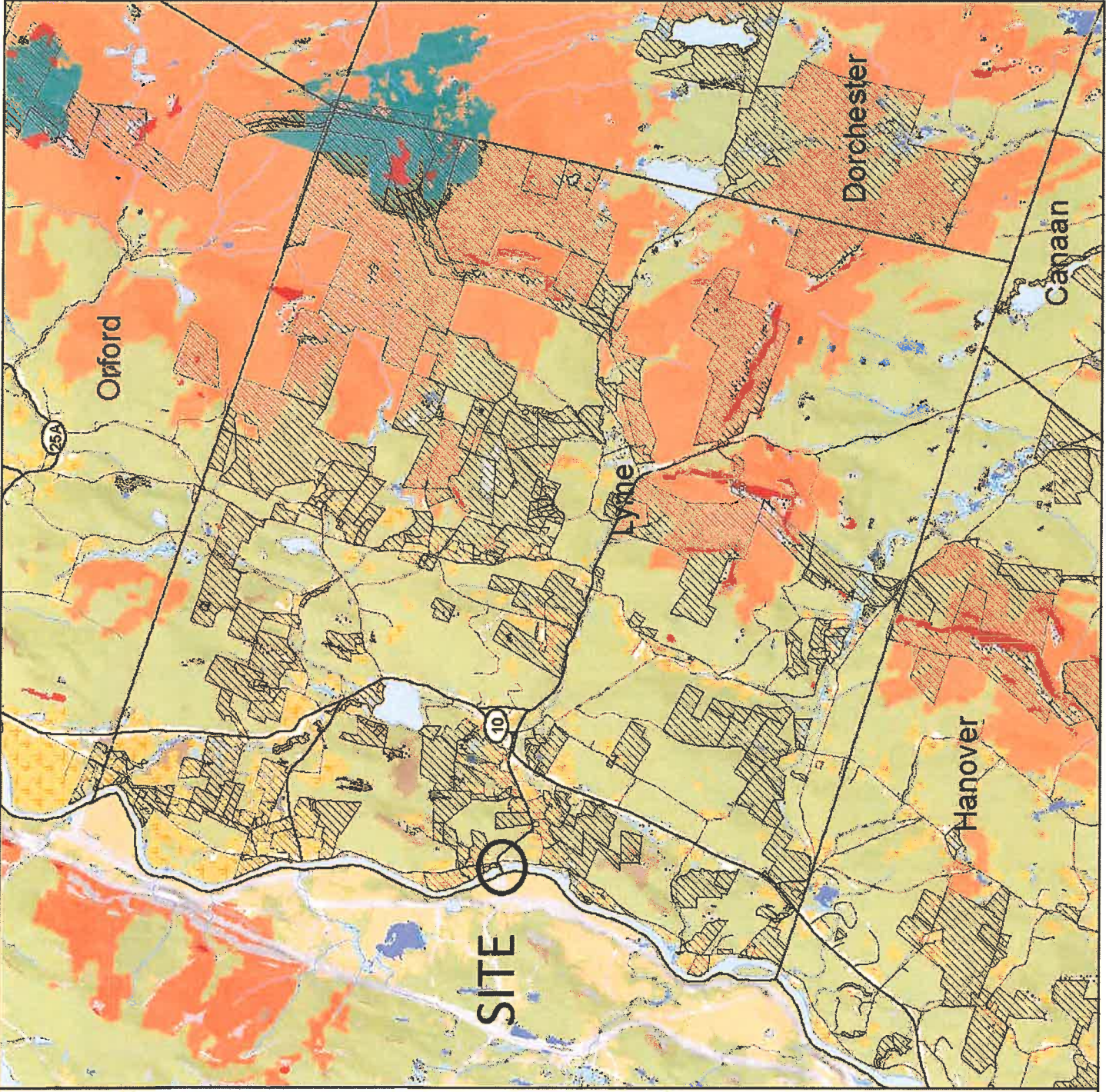
A handwritten signature in blue ink, appearing to read "Louis A. Chiarella".

Louis A. Chiarella  
Assistant Regional Administrator  
For Habitat Conservation

cc: Tom Nies, NEFMC







**NEW HAMPSHIRE WILDLIFE HABITAT LAND COVER 2015**

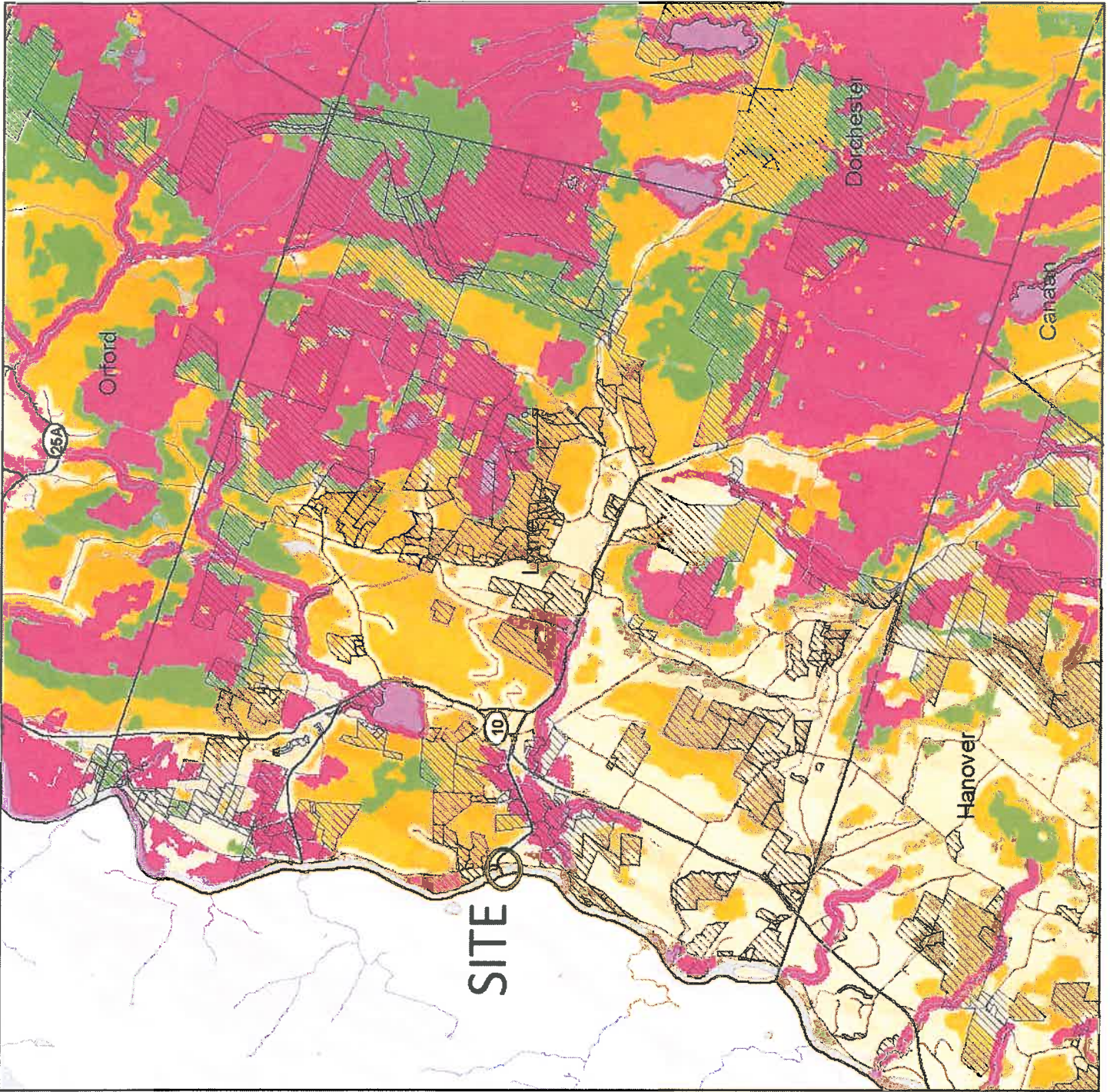
- Coastal Island/Rocky coast
- Dune
- Salt marsh
- Peatland
- Marsh and Shrub wetland
- Northern or Temperate Swamp
- Floodplain Forest
- Grassland
- Pine barren
- Cliff or Talus slope
- Rocky ridge
- Alpine
- High-elevation Spruce-fir
- Low-elevation Spruce-fir
- Northern hardwood-conifer
- Appalachian oak-pine
- Hemlock-hardwood-pine
- Open Water
- Developed or Barren (NLCD)
- Conservation or public land

Base map data provided by NH GRANIT (2015)  
Intended for planning use only

NEW HAMPSHIRE  
**Wildlife Action Plan**  
September 2015

0 1 2 Kilometers  
0 1 2 Miles

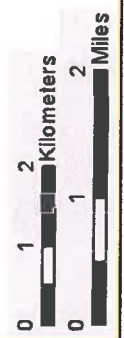




**2015 HIGHEST RANKED WILDLIFE HABITAT BY ECOLOGICAL CONDITION**

- Highest Ranked Habitat in New Hampshire
- Highest Ranked Habitat in the Biological Region  
Biological region = TNC ecoregional subsection for terrestrial habitats or Aquatic Resource mitigation region for wetlands and floodplain forest.
- Supporting Landscapes
- Conservation or public

Base map data provided by NH GRANIT (2015)  
Not intended for legal use





U.S. Department of  
Homeland Security

United States  
Coast Guard



Commander  
First Coast Guard District

One South Street  
Battery Park Building  
New York, NY 10004-1466  
Staff Symbol: dpb  
Phone: (212) 514-4331  
Fax: (212) 514-4337  
<http://www.uscg.mil/hq/cg5/cg551/>

March 22, 2017

16590/H/Connecticut  
River/VT/NH

Jamison S. Sikora  
Environmental Programs Manager  
Federal Highway Administration  
53 Pleasant Street, Suite 2200  
Concord, NH 03301

**Re: NV-962: Lyme NH/Thetford VT RT 113 Bridge  
over Connecticut River NH/VT**

Dear Mr. Sikora:

This is in response to your letter dated March 20, 2017 invoking 23 U.S.C. Section 144 (c) for the referenced waterway construction project. Based upon information that has been provided, we concur with your determination.

Although this project will not require a bridge permit other areas of Coast Guard jurisdiction apply. The following stipulations must be met:

- a. The lowest portion of the superstructure of the bridge across the waterway should clear the 100-year flood height elevation, if feasible.
- b. The requirement to display permanent navigation lights at the bridge is waived. This waiver may be rescinded at any time in the future should nighttime navigation through the bridge be increased to a level determined by the District Commander to warrant lighting (generally four or more passages per week between the hours of sunset and sunrise).
- c. Any spillage of oil or oil-based products during construction must be promptly reported to the Coast Guard by calling 1-800-424-8802.
- d. This approval does not relieve the bridge owner of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance for the proposed bridge.

If you have any further questions feel free to contact this office at the number above.

Sincerely,

A handwritten signature in blue ink, appearing to read "CJ Bisignano".

C. J. BISIGNANO  
Supervisory Bridge Management Specialist  
U.S. Coast Guard  
By direction

Copy: 1) CG Sector Northern New England, Waterways



MARGARET WOOD HASSAN  
GOVERNOR

STATE OF NEW HAMPSHIRE  
OFFICE OF ENERGY AND PLANNING  
107 Pleasant Street, Johnson Hall  
Concord, NH 03301-3834  
Telephone: (603) 271-2155  
Fax: (603) 271-2615



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

## MEMORANDUM

**TO:** Michael Leach  
Stantec Consulting Services, Inc.

**FROM:** Jennifer Gilbert  
NH Floodplain Management Program Coordinator

**DATE:** July 1, 2016

**SUBJECT:** Lyme, NH - Thetford, VT Bridge Rehabilitation  
NHDOT project #14460

---

I am writing in reference to your letter dated June 10, 2016 regarding the above-referenced project's impact on floodplain areas.

I have reviewed FEMA Flood Insurance Rate Map (FIRM) where the proposed area. It appears within the study area there is a special flood hazard area associated with Connecticut River, which is designated as Zone AE.

Since the Town of Lyme is a participating community of the National Flood Insurance Program (NFIP), any development in a special flood hazard area should meet the NFIP requirements contained in each municipality's floodplain management ordinance. Development is defined under the NFIP as "any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials."

Since no floodway has been designated for the Connecticut River in this area, the following NFIP requirement contained in the town's floodplain regulations would apply:

Until a Regulatory Floodway is designated along watercourses, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zone AE on the FIRM, unless it is demonstrated by the applicant that the cumulative effect of the proposed development, when combined with all existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

If you need further assistance, please contact me at 271-2155 or [jennifer.gilbert@nh.gov](mailto:jennifer.gilbert@nh.gov).



## Memo

---

To:	Project File Auburn, NH	From:	Gerard Fortin, PE Senior Principal Auburn, NH
File:	195311395 Lyme, NH – Thetford, VT East Thetford Road over the Connecticut River	Date:	April 12, 2018

---

**Reference: Assessment of Floodplain Impact – Bridge Rehabilitation Project**

The rehabilitation of the Lyme -Thetford bridge involves the following work within the 100-year floodplain of the Connecticut River including:

- Removal of the existing pier and replacement with a new pier which is approximately 4 feet wider.
- Reconstruction of the rockfill slopes in front on the abutment walls. The final grades after reconstruction are intended to meet the existing grades.

The 100-year floodplain is at elevation 400.5. The work related to the rehabilitation of the bridge will have a negligible impact on floodplain elevation.

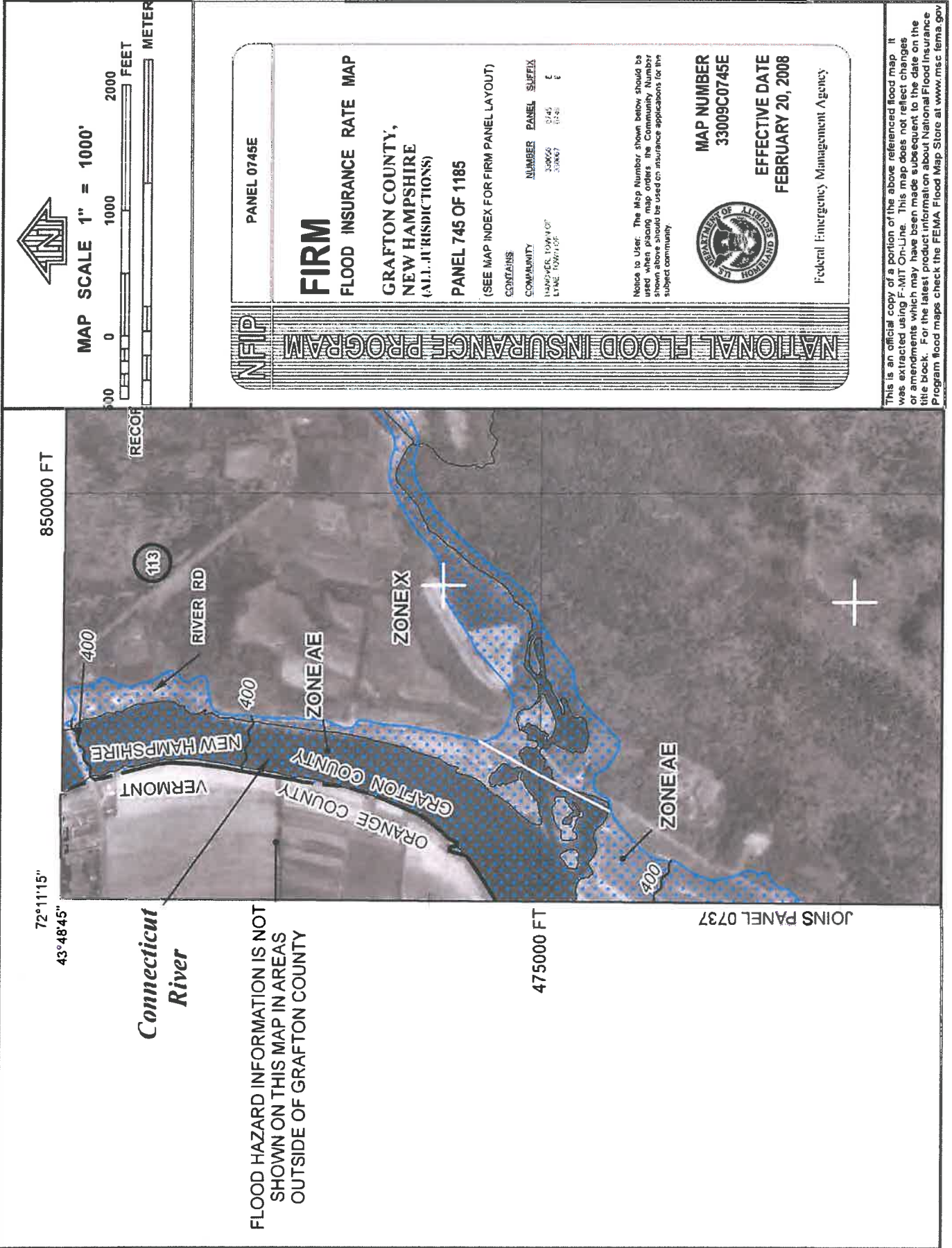
STANTEC CONSULTING SERVICES INC.

A handwritten signature in black ink, appearing to read "G. Fortin", is positioned above the printed name.

Gerard J Fortin, PE  
Senior Principal

Phone: (603) 669-8672  
Fax: (603) 669-7636  
Gerard.fortin@stantec.com

c. Michael Leach  
Stantec



MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 1000 2000 METER

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**GRAFTON COUNTY,  
 NEW HAMPSHIRE  
 (ALL JURISDICTIONS)**  
**PANEL 745 OF 1185**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

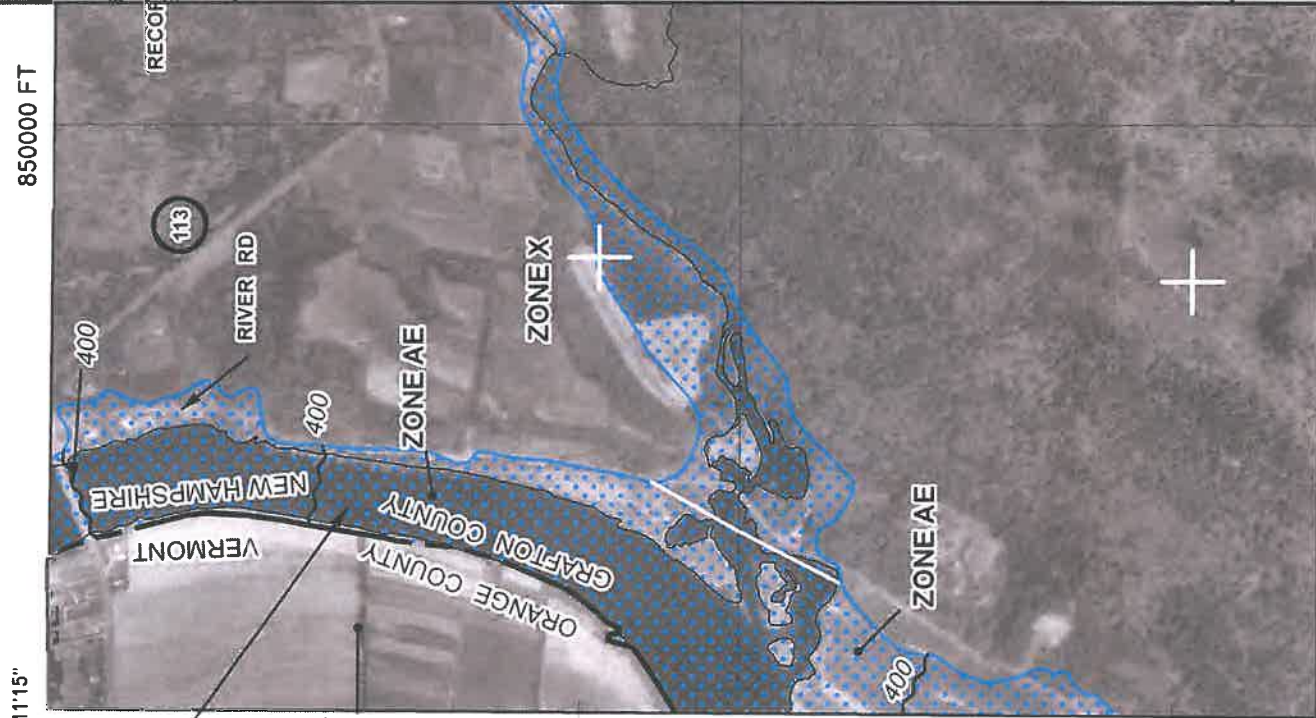
CONTAINS	NUMBER	PANEL SUFFIX
COMPANY	33009C	0745
MAP NUMBER	33009C	0745E

Notice to User: The Map Number shown below should be used when placing orders for coverage. The community shown above should be used on insurance applications for the subject community.

**MAP NUMBER 33009C0745E**  
**EFFECTIVE DATE FEBRUARY 20, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



850000 FT

475000 FT

**CONNECTICUT RIVER**

FLOOD HAZARD INFORMATION IS NOT SHOWN ON THIS MAP IN AREAS OUTSIDE OF GRAFTON COUNTY

JOINS PANEL 0737



To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program



APPROXIMATE SCALE

1000  
0

**NATIONAL FLOOD INSURANCE PROGRAM**


**FIRM**  
**FLOOD INSURANCE RATE MAP**

TOWN OF  
THETFORD,  
VERMONT  
ORANGE COUNTY

PANEL 20 OF 20  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

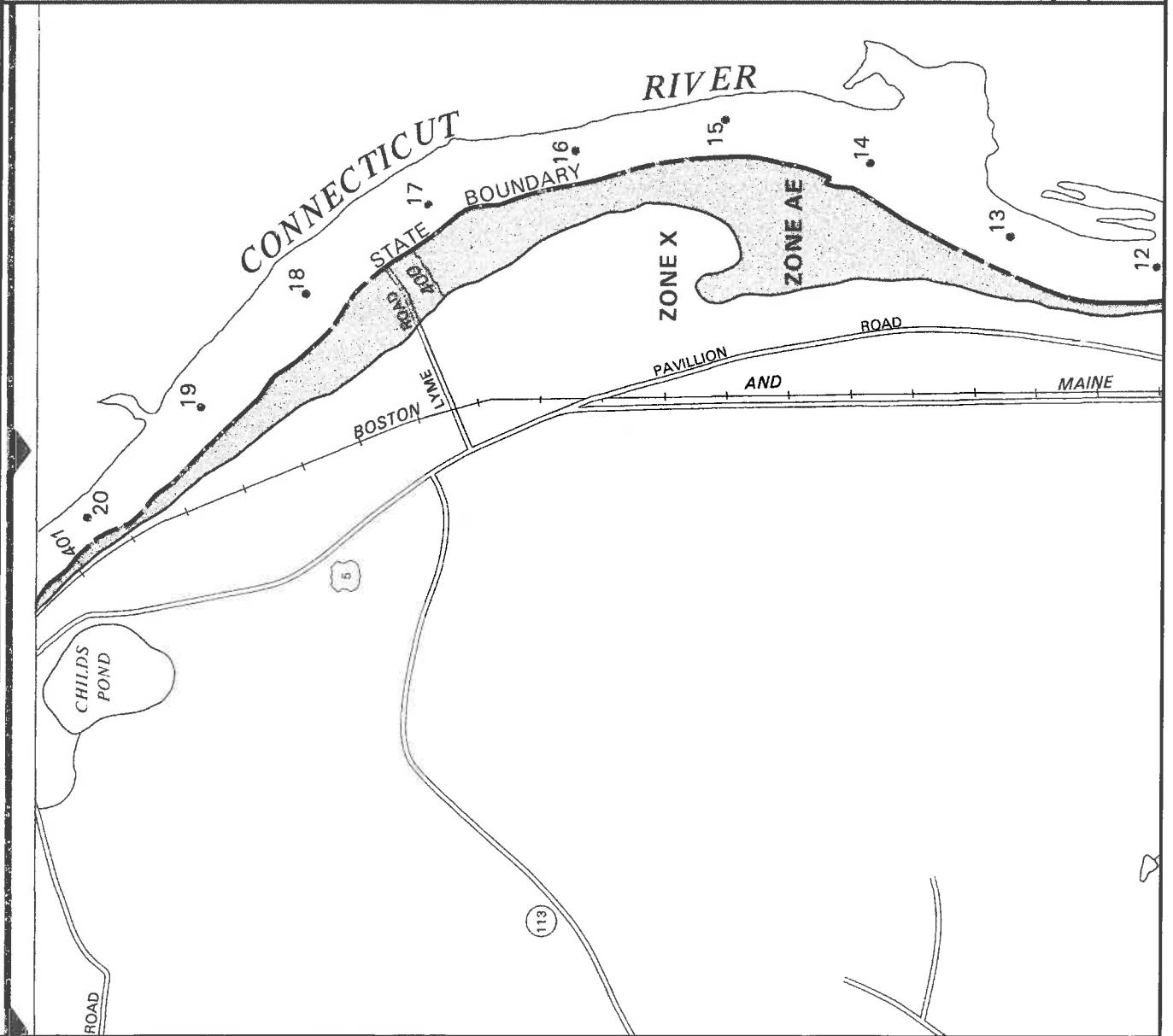
COMMUNITY-PANEL NUMBER  
500075 0020 C

MAP REVISED:  
DECEMBER 20, 1999



Federal Emergency Management Agency

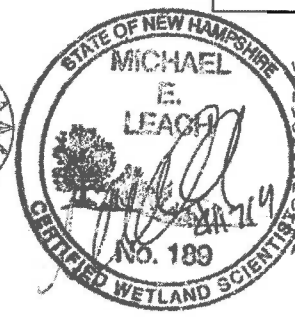
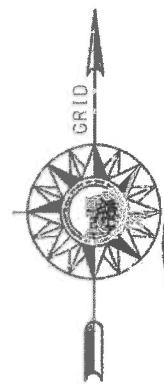
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the file block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



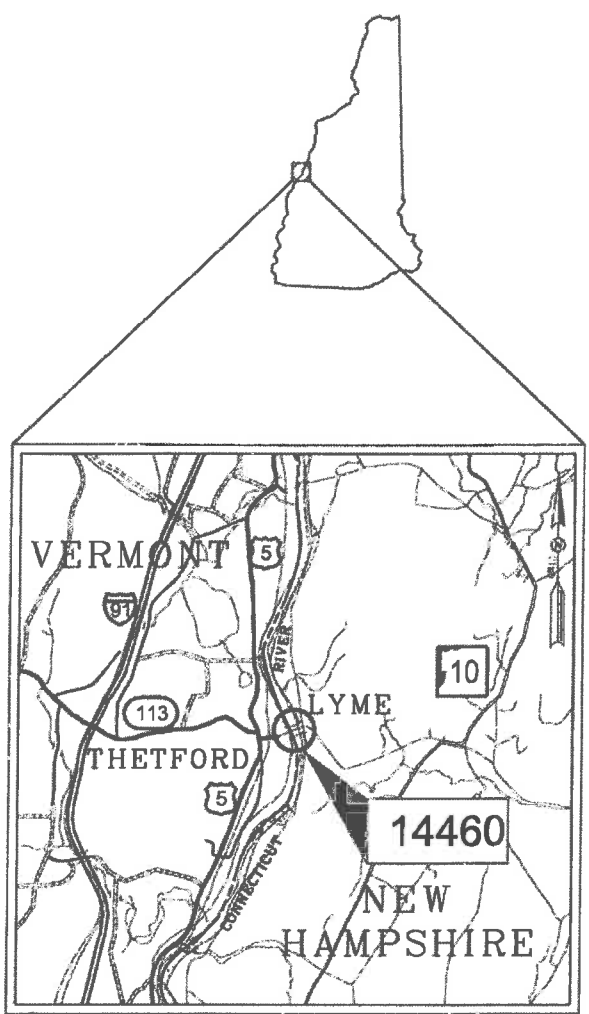
STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION  
**WETLANDS PLANS**  
**FEDERAL AID PROJECT**

A000(394)  
NH PROJECT NO. 14460  
EAST THETFORD ROAD

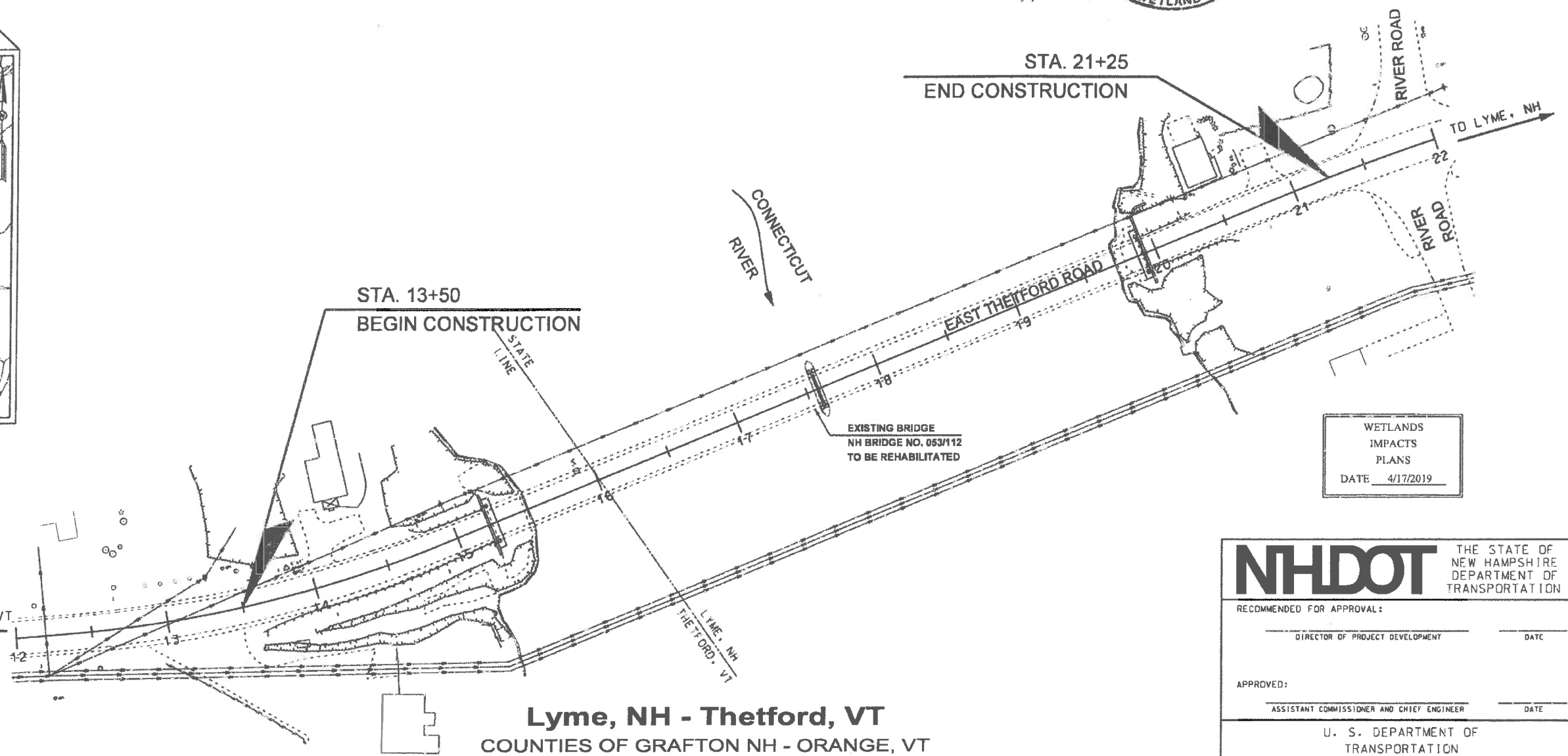
DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 <sub>16</sub>	2200
AVERAGE DAILY TRAFFIC 20 <sub>36</sub>	2700
PERCENT OF TRUCKS	9.5%
DESIGN SPEED	40 MPH
LENGTH OF PROJECT	775 FT



WETLANDS WERE DELINEATED BY STANTEC, INC. IN 2013 REFRESHED IN 2018. THE WETLAND DELINEATIONS WERE COMPLETED IN ACCORDANCE WITH THE CRITERIA DESCRIBED IN THE U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL TECHNICAL REPORT Y-87-1 (JANUARY, 1987) AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL FOR THE NORTH-CENTRAL/NORTHEAST REGION (VERSION 2.0, JANUARY, 2012) AND MEET THE CRITERIA FOR WETLAND DELINEATION IN ACCORDANCE WITH THE NH DES ADMINISTRATIVE RULES ENV-WT 301.01 AND ENV-WT 101.48.

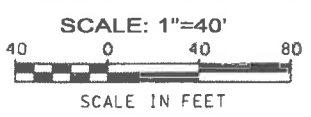


LOCATION MAP  
GRAPHIC SCALE  
0 1 2 mi.



WETLANDS  
IMPACTS  
PLANS  
DATE 4/17/2019

Lyme, NH - Thetford, VT  
COUNTIES OF GRAFTON NH - ORANGE, VT



FOR CONSTRUCTION AND ALIGNMENT  
DETAILS SEE CONSTRUCTION PLANS

INDEX OF SHEETS

1	TITLE SHEET
2-3	STANDARD SYMBOLS 1-2
4	SITE PLAN & PROFILE
5	SURVEY LAYOUT AND APPROACH SECTION
6	EROSION CONTROL STRATEGIES AND STABILIZATION MATRIX
7-8	WETLAND IMPACTS PLANS 1-2
9-11	EROSION CONTROL PLANS 1-3
12-13	CONSTRUCTION SEQUENCE PLANS 1-2

**NH DOT** THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:

\_\_\_\_\_  
DIRECTOR OF PROJECT DEVELOPMENT      DATE

APPROVED:

\_\_\_\_\_  
ASSISTANT COMMISSIONER AND CHIEF ENGINEER      DATE

U. S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

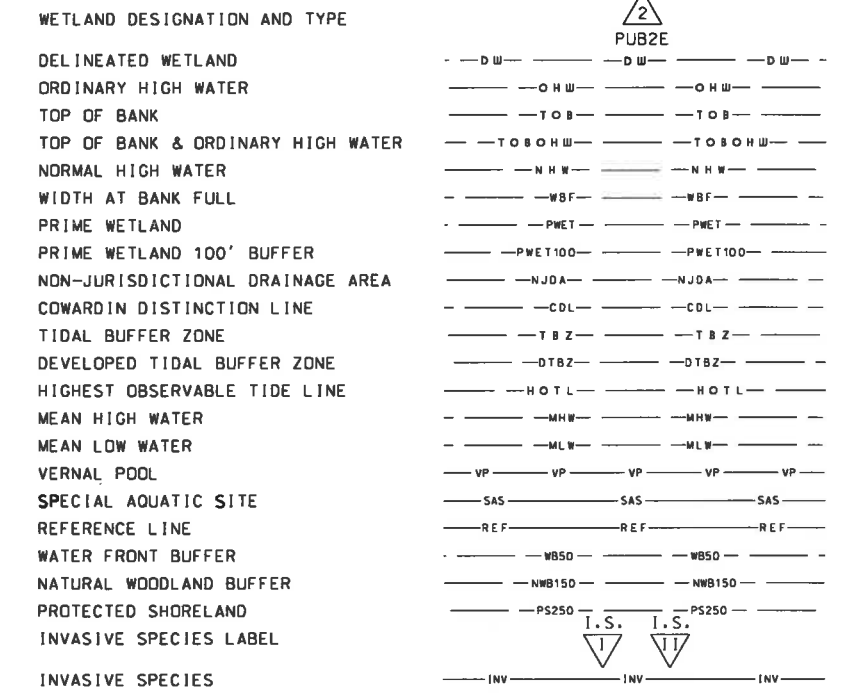
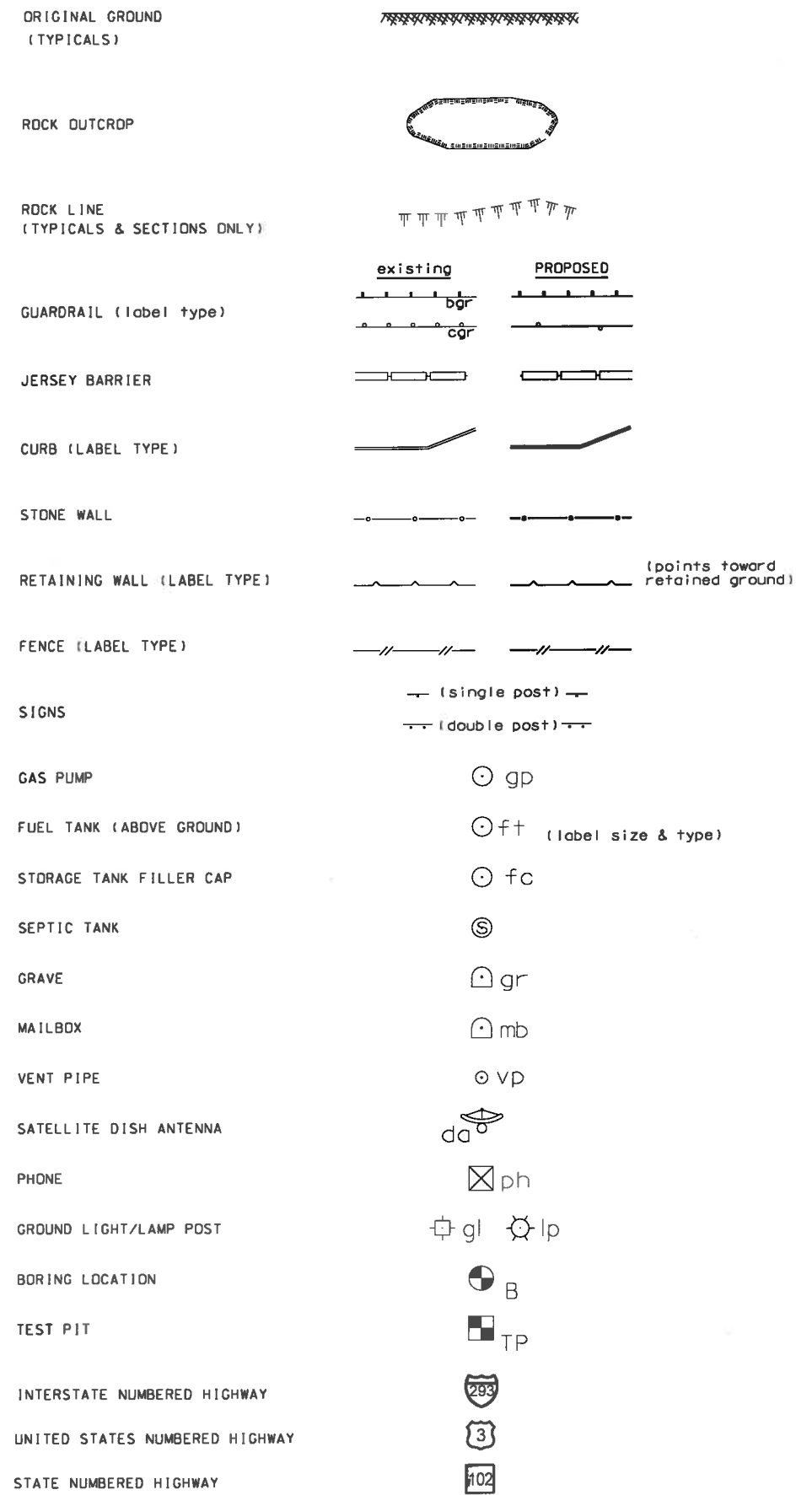
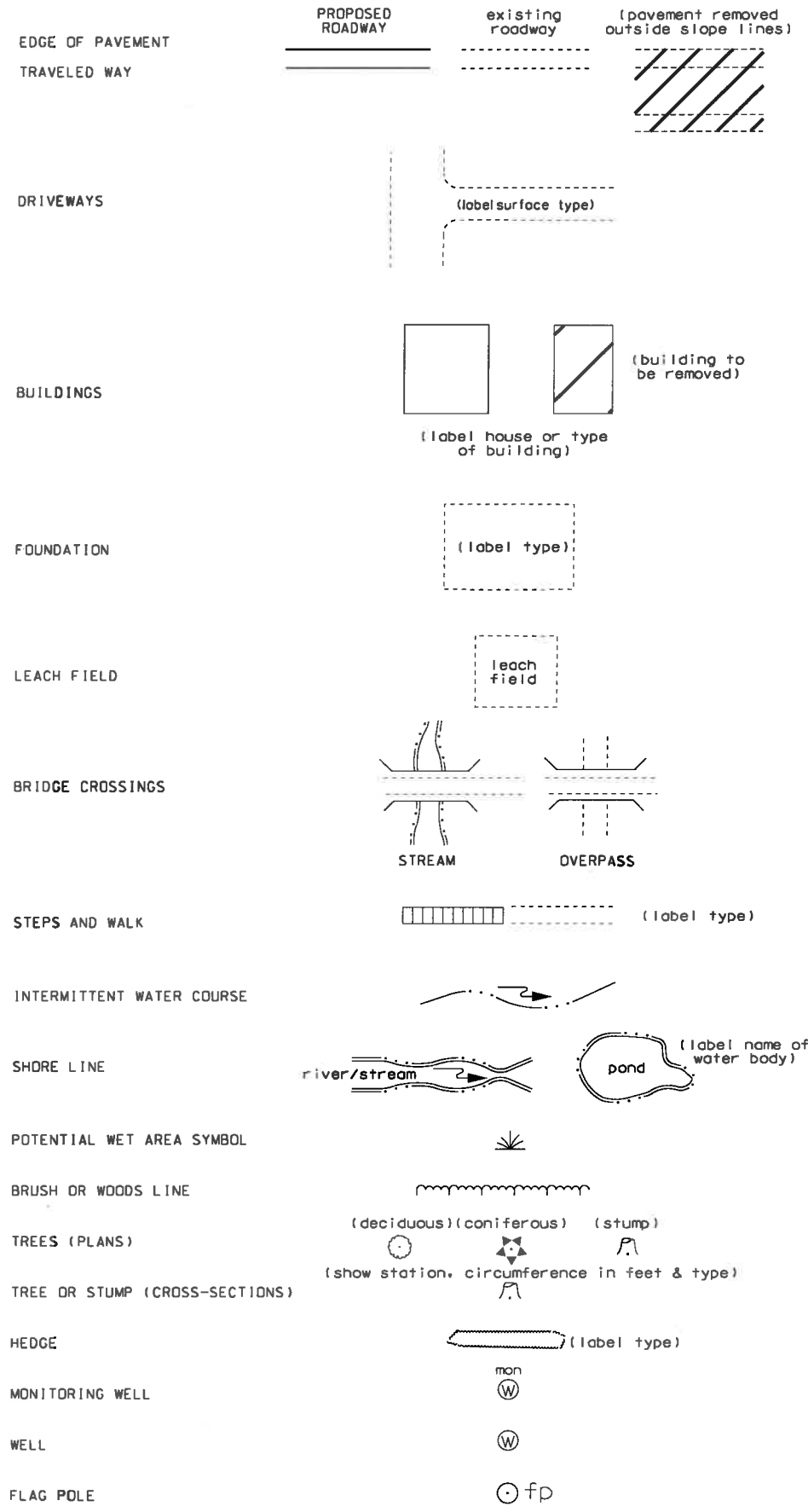
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DIVISION ADMINISTRATOR      DATE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
	14460	1	13



# GENERAL

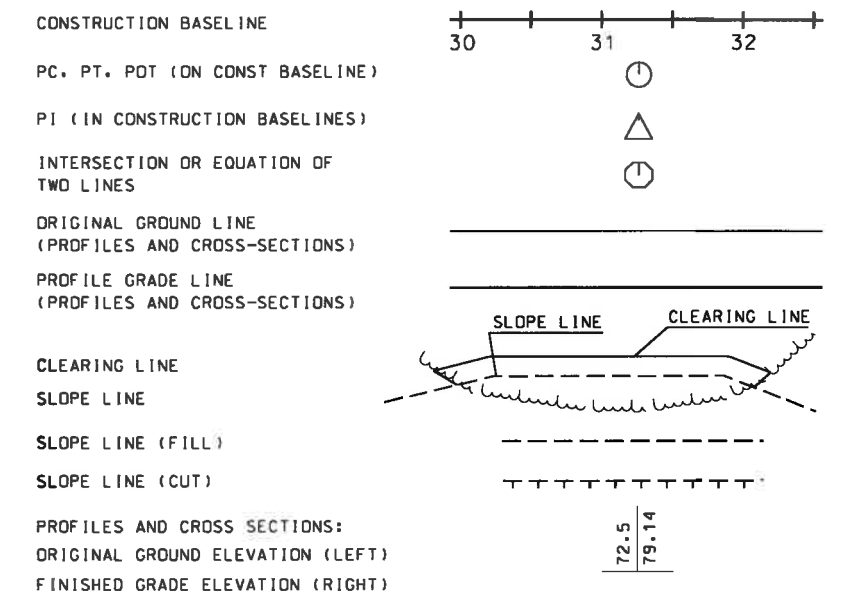
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# FLOODPLAIN / FLOODWAY



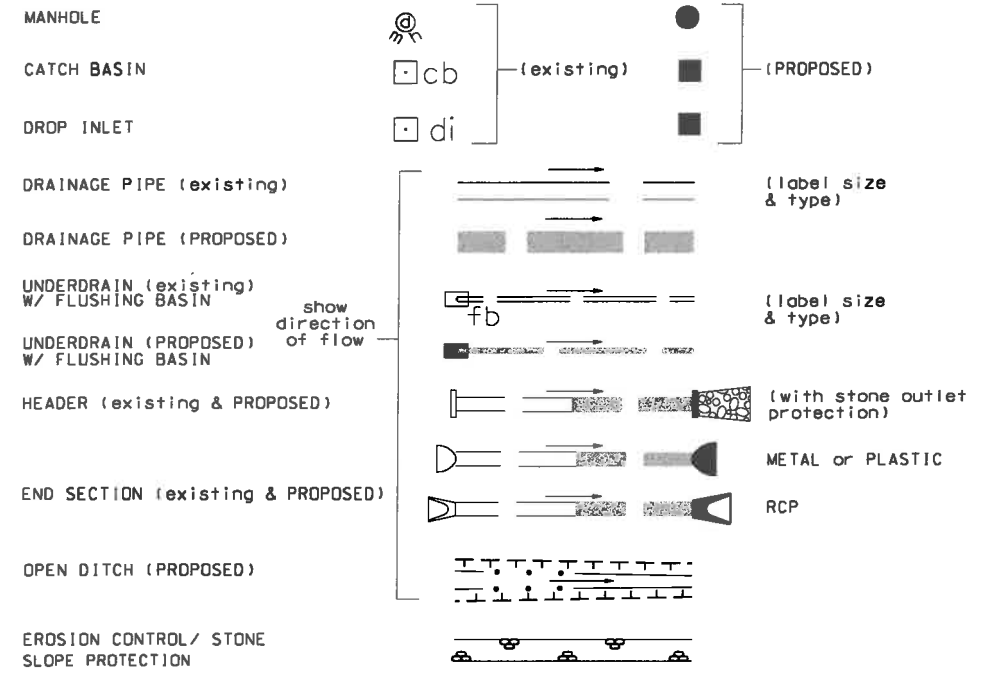
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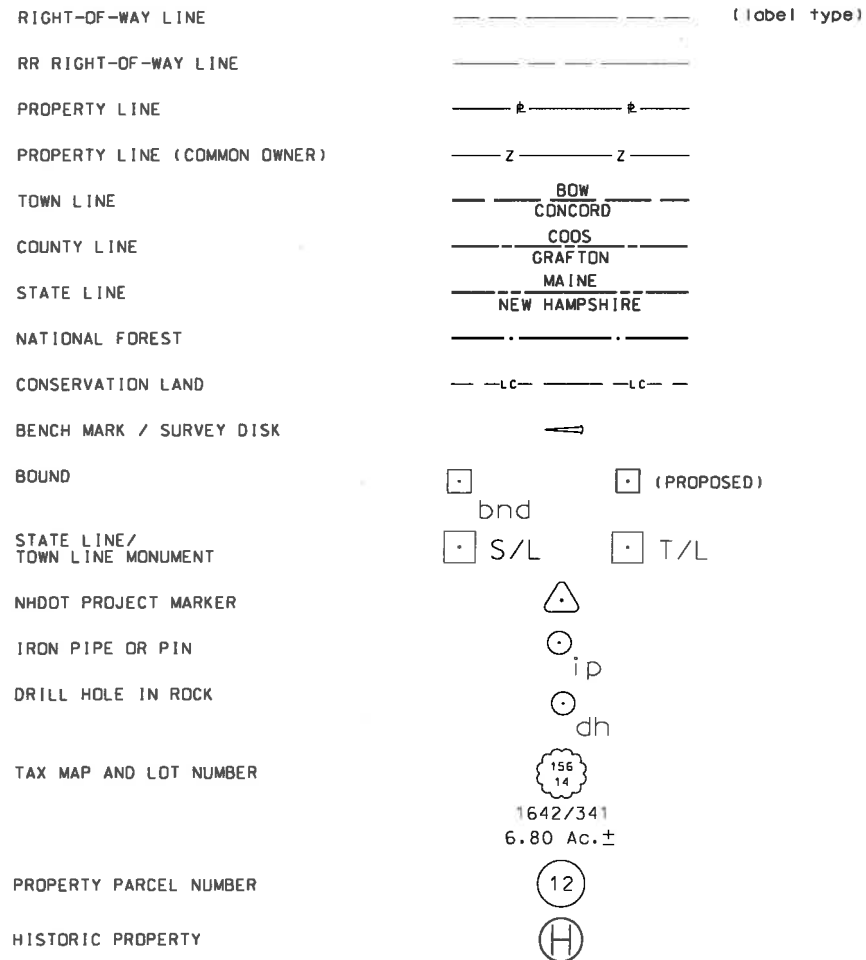
STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>STANDARD SYMBOLS 1</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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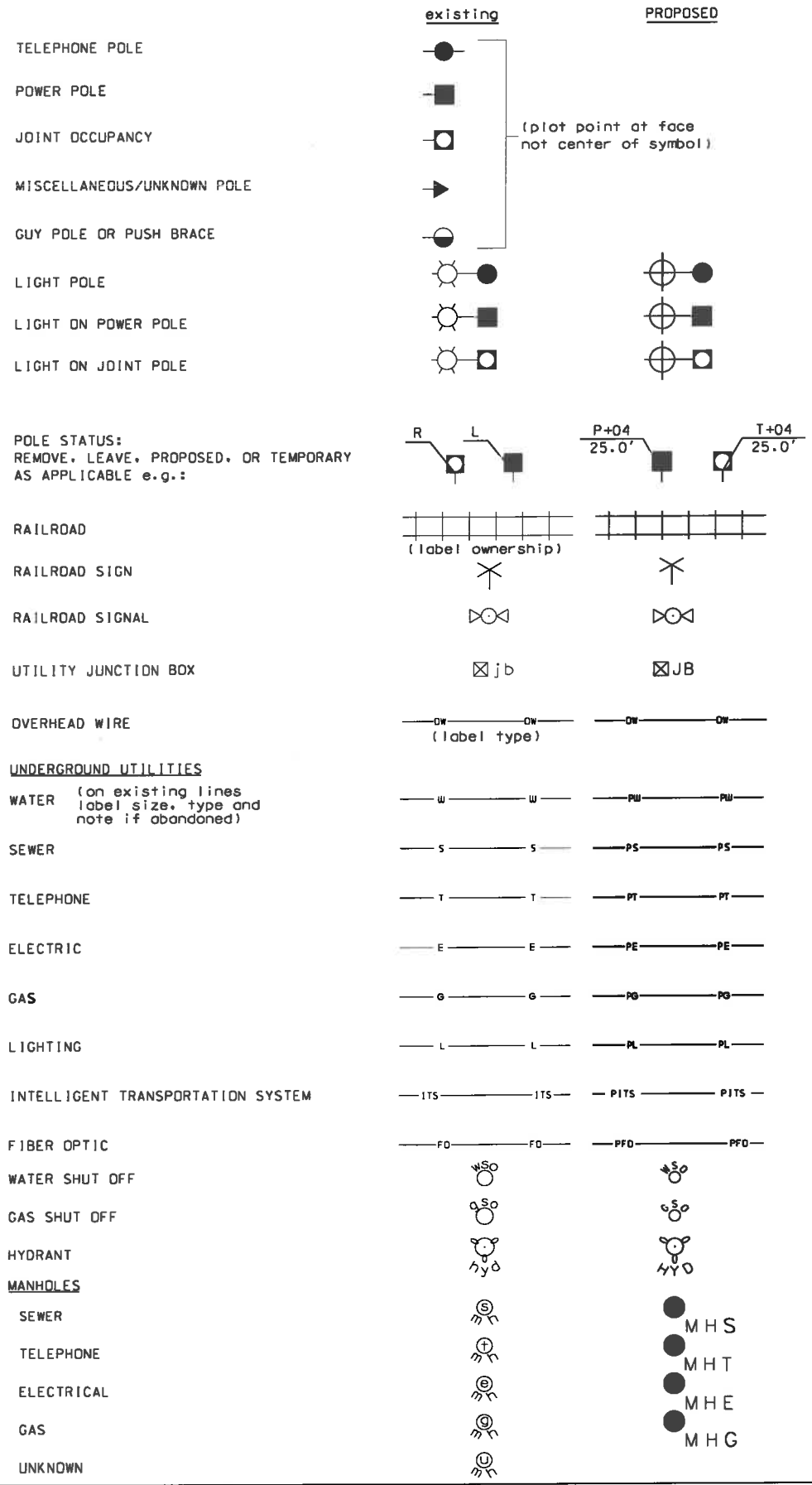
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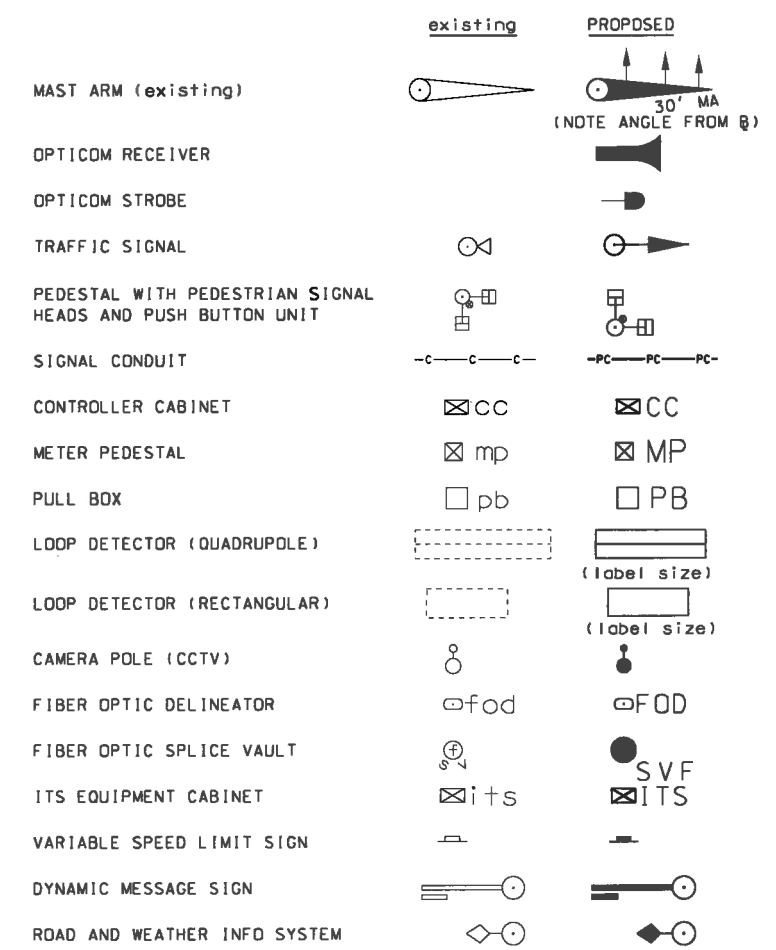
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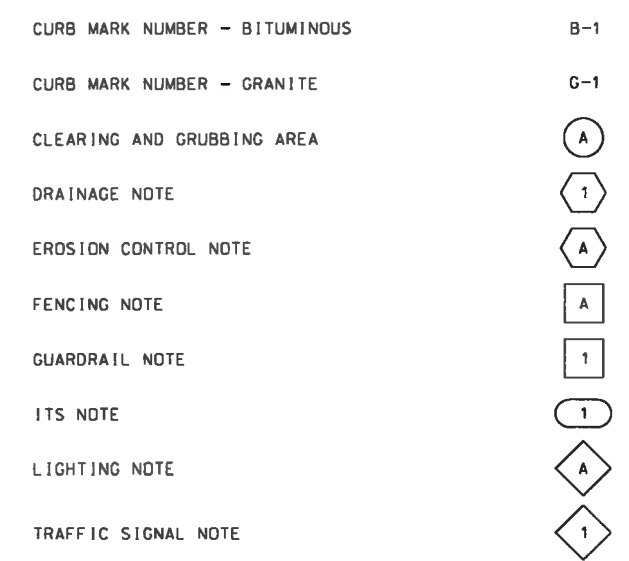
### UTILITIES



### TRAFFIC SIGNALS / ITS

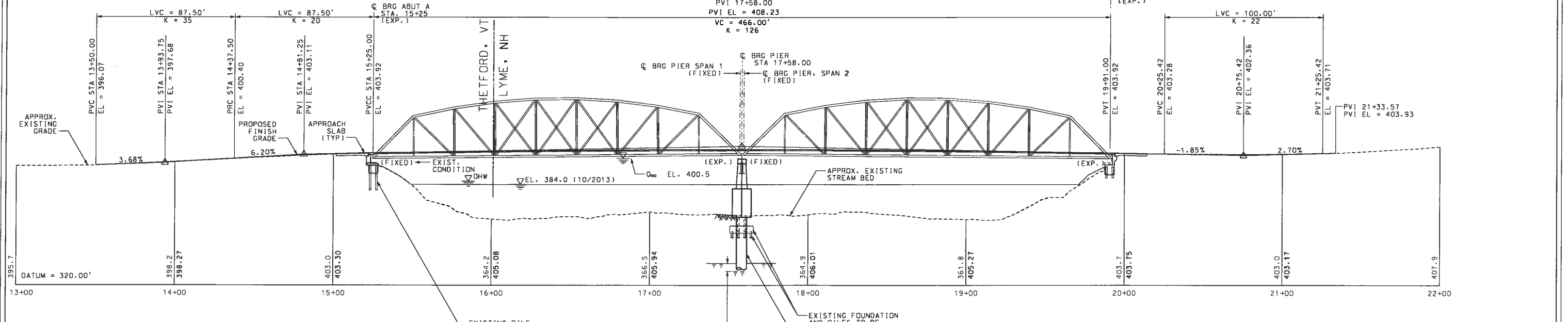
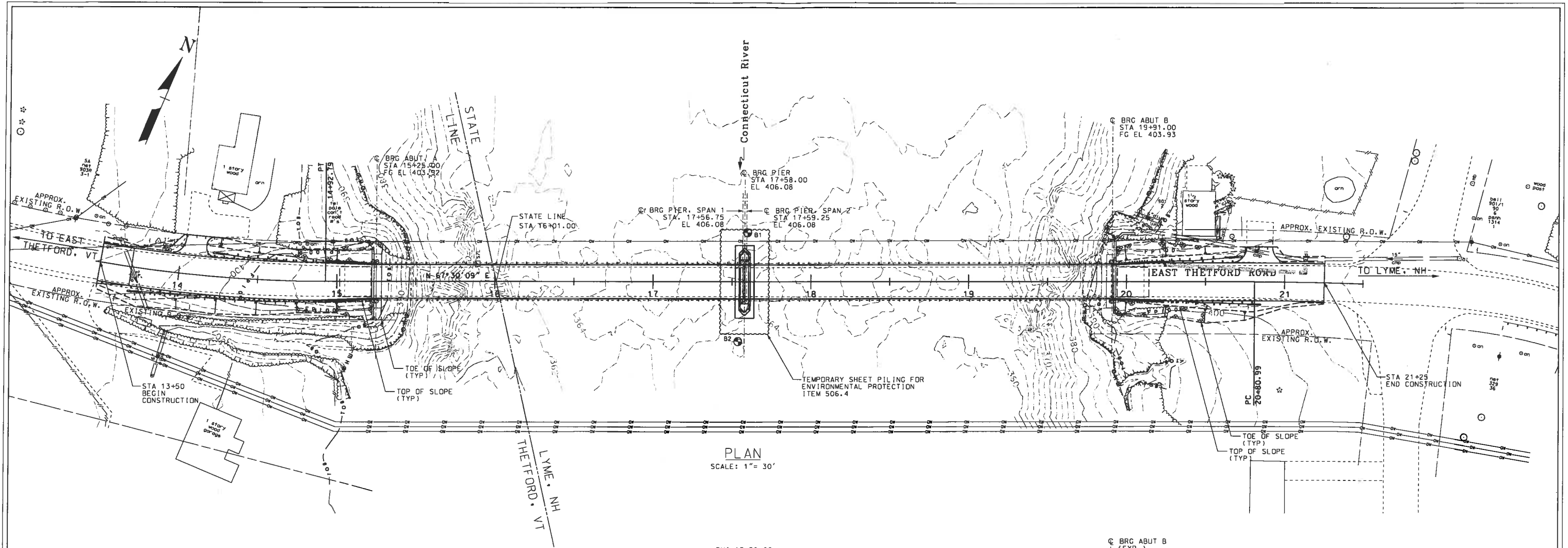


### CONSTRUCTION NOTES



STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<b>STANDARD SYMBOLS 2</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
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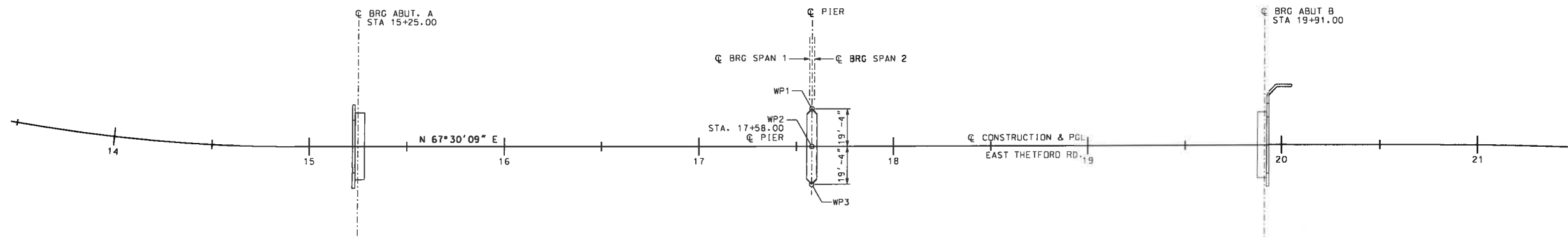


<b>STATE OF NEW HAMPSHIRE</b>											
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN											
TOWN LYME, NH-THETFORD, VT				BRIDGE NO. 053/112				STATE PROJECT 14460			
LOCATION EAST THETFORD ROAD OVER THE CONNECTICUT RIVER											
<b>SITE PLAN AND PROFILE</b>										BRIDGE SHEET	
REVISIONS AFTER PROPOSAL										OF	
DESIGNED	TEK	7/2016	CHECKED	TEK	7/2016						
DRAWN	JTS	7/2016	CHECKED								
QUANTITIES			CHECKED								
ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.							
REV. DATE 04/17/19				4		TOTAL SHEETS 13					



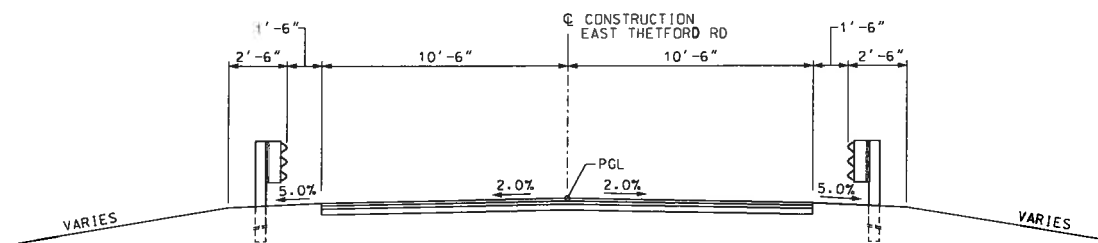
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
BRC	04_siteplan	AS NOTED

**PROFILE**  
SCALE: 1" = 30'



**SURVEY LAYOUT**  
SCALE: 1" = 30'

WORKING POINT COORDINATES		
WORKING POINT NO.	NORTHING	EASTING
WP1	478675.5147	847926.0531
WP2	478657.6527	847933.4509
WP3	478639.7907	847940.8486



**EAST THETFORD ROAD APPROACH SECTION**  
SCALE: 1/4" = 1'-0"



SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
BRC	07_Sv layout	AS NOTED

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	LYME, NH-THETFORD, VT	BRIDGE NO.	053/112	STATE PROJECT	14460				
LOCATION	EAST THETFORD ROAD OVER THE CONNECTICUT RIVER								
SURVEY LAYOUT AND APPROACH SECTION									
REVISIONS AFTER PROPOSAL		DESIGNED	BY	DATE	CHECKED	BY	DATE	FILE NUMBER	BRIDGE SHEET
		DRAWN	JGS	12/2018	XXX	LRB	01/2019	1-14-2-6	OF
		QUANTITIES			CHECKED				
		ISSUE DATE			FEDERAL PROJECT NO		SHEET NO		TOTAL SHEETS
		REV. DATE	04/17/19				5		13



# EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
  - 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
  - 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
  - 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
  - 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
  - 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WO 1500 REQUIREMENTS ([HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM](http://des.nh.gov/organization/commissioner/legal/rules/index.htm))
  - 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.
2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
  - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
  - 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
  - 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
  - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
    - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
  - 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
  - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
  - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
  - 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30<sup>th</sup> AND MAY 1<sup>st</sup> OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
    - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15<sup>th</sup>, OR WHICH ARE DISTURBED AFTER OCTOBER 15<sup>th</sup>, SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
    - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15<sup>th</sup>, OR WHICH ARE DISTURBED AFTER OCTOBER 15<sup>th</sup>, SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
    - (C) AFTER NOVEMBER 30<sup>th</sup> INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
    - (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WO 1505.02 AND ENV-WO 1505.05.
    - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WO 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30<sup>th</sup>.

### GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
  - 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
  - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
  - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
  - 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
  - 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.
4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
  - 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
  - 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
  - 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1<sup>st</sup> THROUGH NOVEMBER 30<sup>th</sup>, OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
  - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
  - 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
  - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
  - 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
  - 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
6. PROTECT SLOPES:
  - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
  - 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
  - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
  - 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
  - 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
  - 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
8. PROTECT STORM DRAIN INLETS:
  - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
  - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
  - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
  - 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
9. SOIL STABILIZATION:
  - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
  - 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
  - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
  - 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
  - 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WO 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
  - 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
  - 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
  - 11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
  - 11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
  - 11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
  - 11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
  - 11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
  - 11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
  - 11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
  - 11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
  - 11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

### BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
  - 12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500; ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
  - 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
  - 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
  - 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
  - 12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
  - 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
  - 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.
13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
  - 13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
  - 13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
  - 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
  - 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.
14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
  - 14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
  - 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
  - 14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WO 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1  
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES <sup>2</sup>				ROLLED EROSION CONTROL BLANKETS <sup>3</sup>			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES <sup>1</sup>												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES <sup>1</sup>	YES <sup>1</sup>	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

- NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH <10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
  2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
  3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

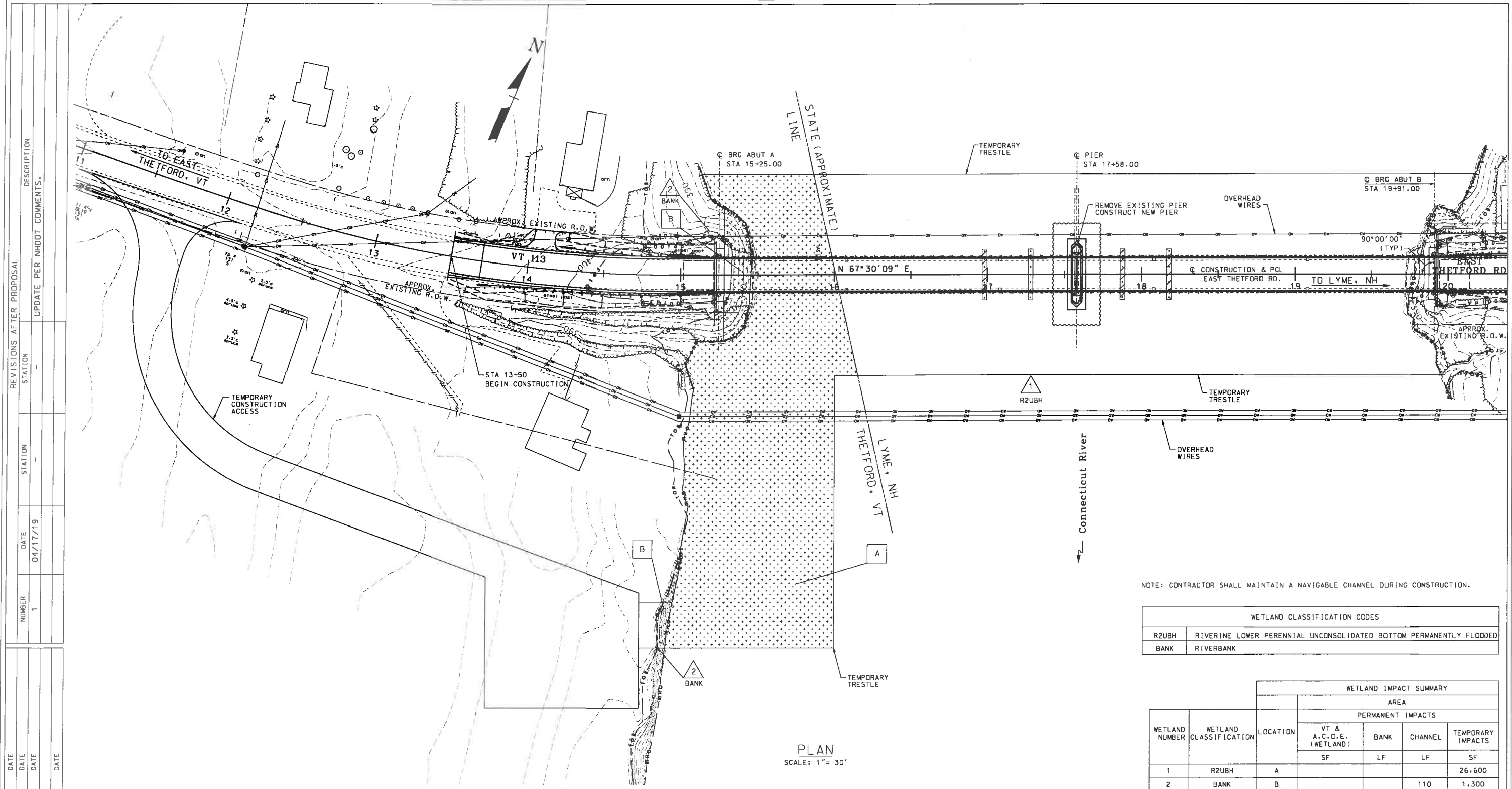
REVISIONS AFTER PROPOSAL	STATION	DATE	DESCRIPTION
NUMBER	STATION	DATE	UPDATE PER NHDOT COMMENTS.
1		04/17/19	
SDR PROCESSED	NEW DESIGN	SHEET CHECKED	AS BUILT DETAILS

Stantec

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

## EROSION CONTROL STRATEGIES AND STABILIZATION MATRIX

REVISION DATE	DCN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	08_EroNotes	14460	6	13



NOTE: CONTRACTOR SHALL MAINTAIN A NAVIGABLE CHANNEL DURING CONSTRUCTION.

WETLAND CLASSIFICATION CODES	
R2UBH	RIVERINE LOWER PERENNIAL UNCONSOLIDATED BOTTOM PERMANENTLY FLOODED
BANK	RIVERBANK

WETLAND IMPACT SUMMARY						
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA			
			PERMANENT IMPACTS			
			VT & A.C.D.E. (WETLAND)	BANK	CHANNEL	TEMPORARY IMPACTS
1	R2UBH	A	SF	LF	LF	SF
2	BANK	B			110	1,300

NET PERMANENT (WETLAND) IMPACTS: 0  
 PERMANENT (NON-WETLAND) IMPACTS: 0  
 TEMPORARY IMPACTS: 27,900  
 TOTAL IMPACTS: 27,900

PLAN  
 SCALE: 1" = 30'

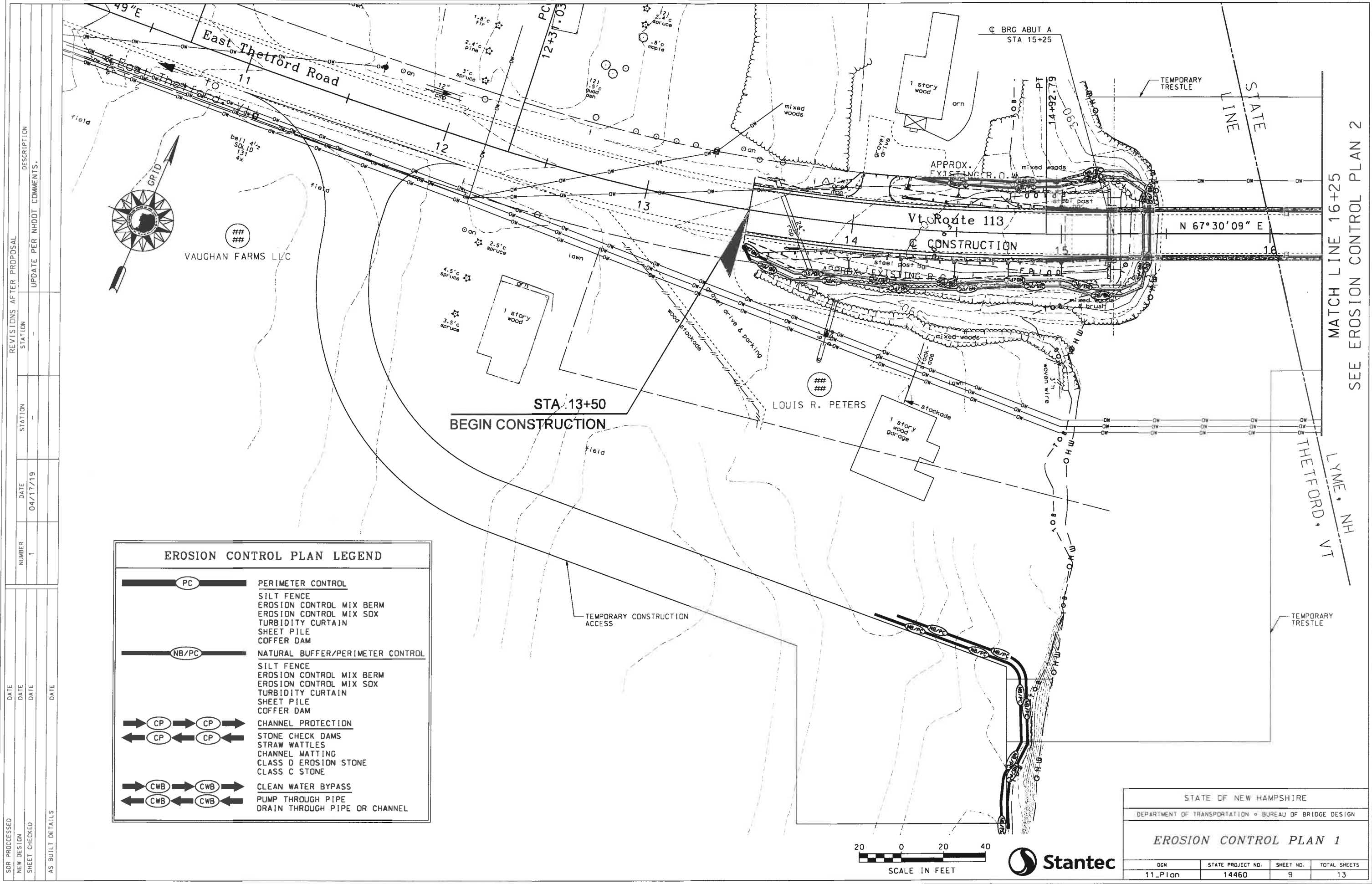
TYPE OF WETLAND IMPACT	SHADING/HATCHING	SYMBOL	DESCRIPTION
VERMONT WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	[Solid Grey]	#	WETLAND DESIGNATION NUMBER
TEMPORARY IMPACTS	[Dotted]	#	WETLAND IMPACT LOCATION
	[Dotted]	#	WETLAND MITIGATION AREA
	[White]	[Box]	MITIGATION



STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF BRIDGE DESIGN			
<b>WETLAND IMPACT PLAN VT</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
09_W Im_VT	14460	7	13

SDR PROCESSED	DATE	REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION
NEW DESIGN	DATE	NUMBER	STATION	UPDATE PER NHDDT COMMENTS.
SHEET CHECKED	DATE	1	04/17/19	
AS BUILT DETAILS	DATE			





REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION
NUMBER	DATE	UPDATE PER NHDDOT COMMENTS.
1	04/17/19	
DATE	DATE	DATE
NEW DESIGN		
SHEET CHECKED		
AS BUILT DETAILS		

EROSION CONTROL PLAN LEGEND	
	<b>PERIMETER CONTROL</b> SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	<b>NATURAL BUFFER/PERIMETER CONTROL</b> SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	<b>CHANNEL PROTECTION</b> STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
	<b>CLEAN WATER BYPASS</b> PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL

STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF BRIDGE DESIGN			
<b>EROSION CONTROL PLAN 1</b>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11_Plan	14460	9	13



MATCH LINE 16+25  
 SEE EROSION CONTROL PLAN 2  
 LYME, NH  
 THETFORD, VT



REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION
UPDATE PER NHDOT COMMENTS.		

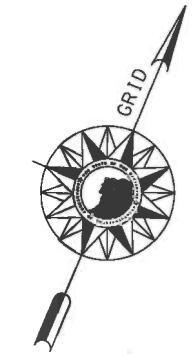
NUMBER	DATE	STATION
1	04/17/19	

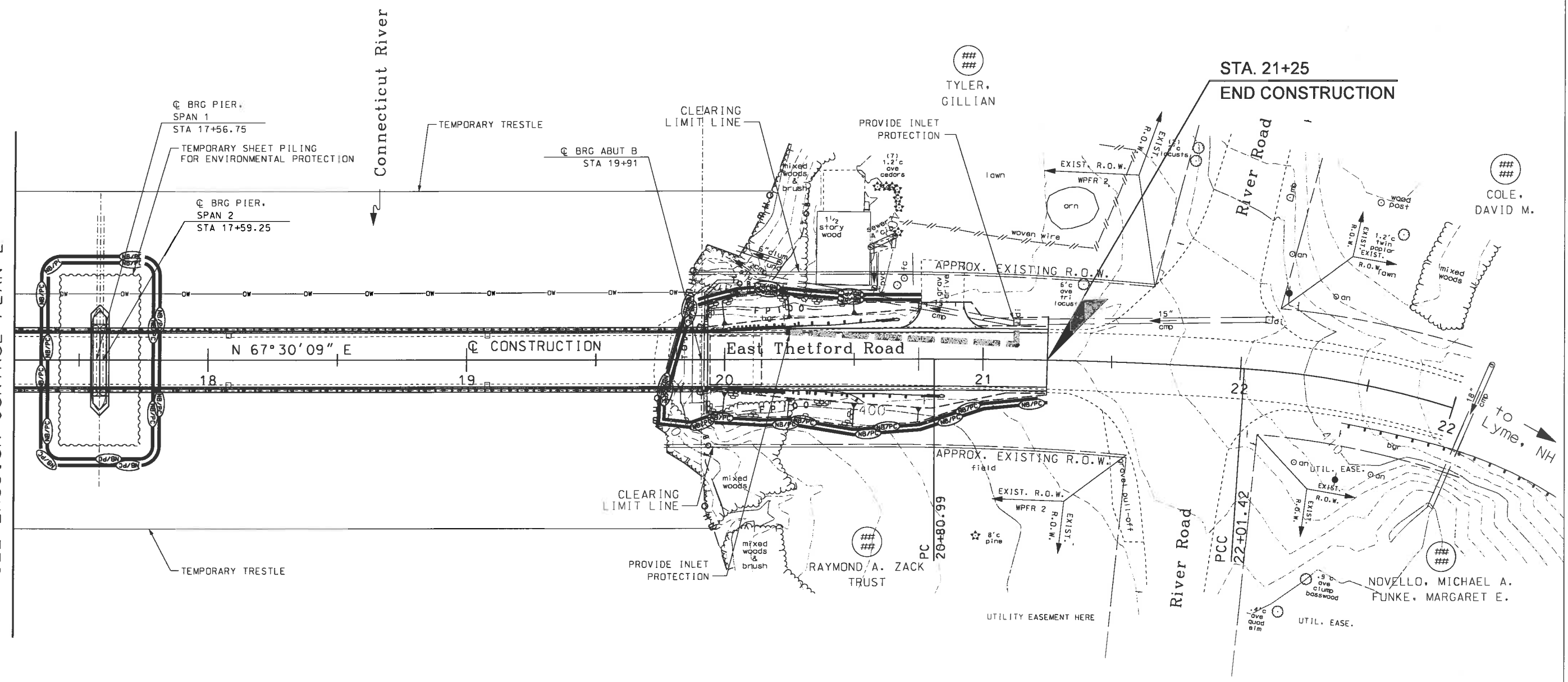
DATE	DATE	DATE

SOR PROCESSED	DATE
NEW DESIGN	DATE
SHEET CHECKED	DATE
AS BUILT DETAILS	DATE

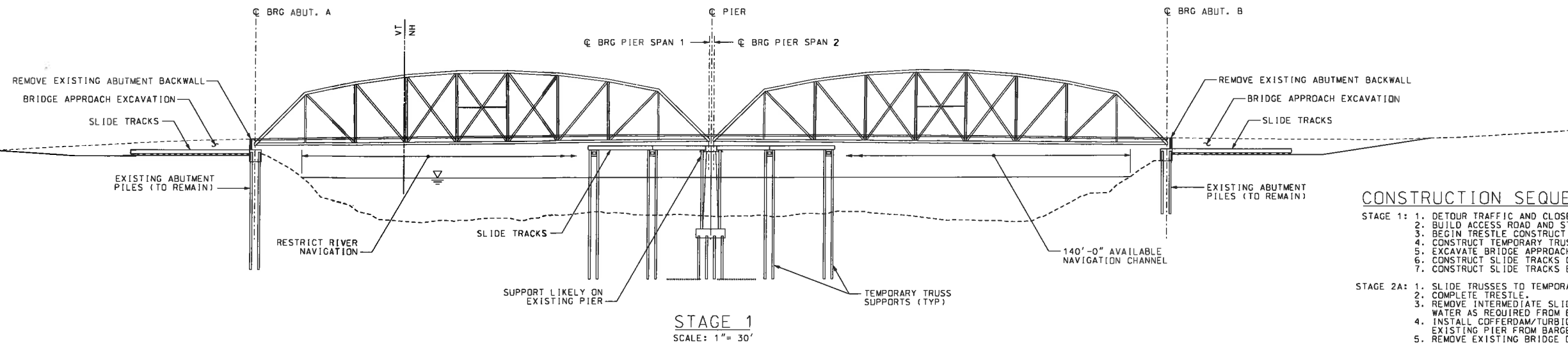


MATCH LINE 17+25  
SEE EROSION CONTROL PLAN 2

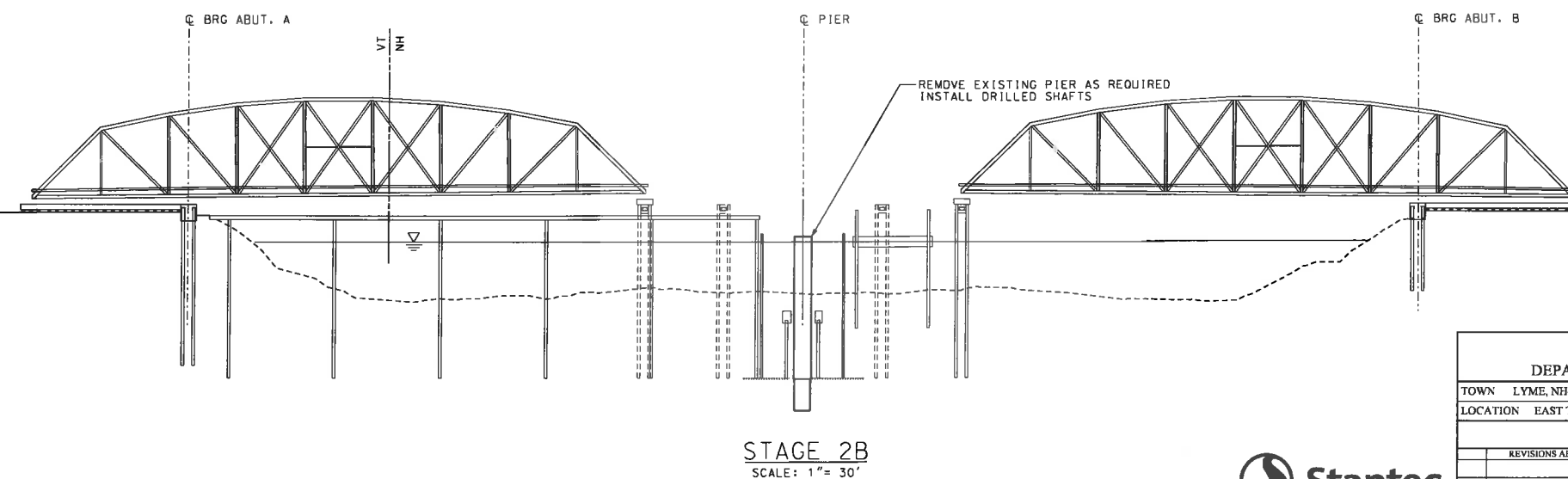
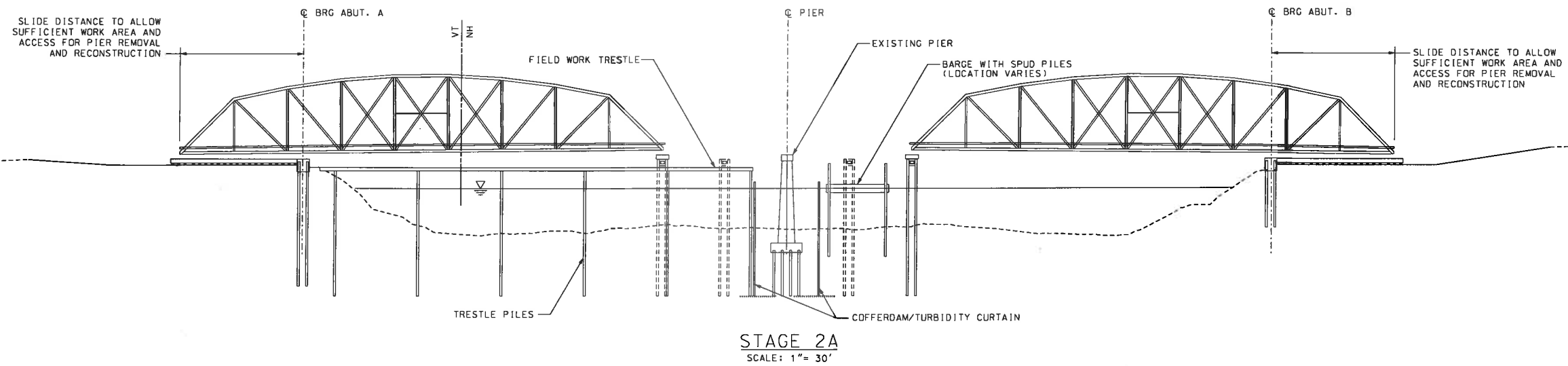


STATE OF NEW HAMPSHIRE			
DEPARTMENT OF TRANSPORTATION • BUREAU OF BRIDGE DESIGN			
<b>EROSION CONTROL PLAN 3</b>			
OGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
13_Plan	14460	11	13





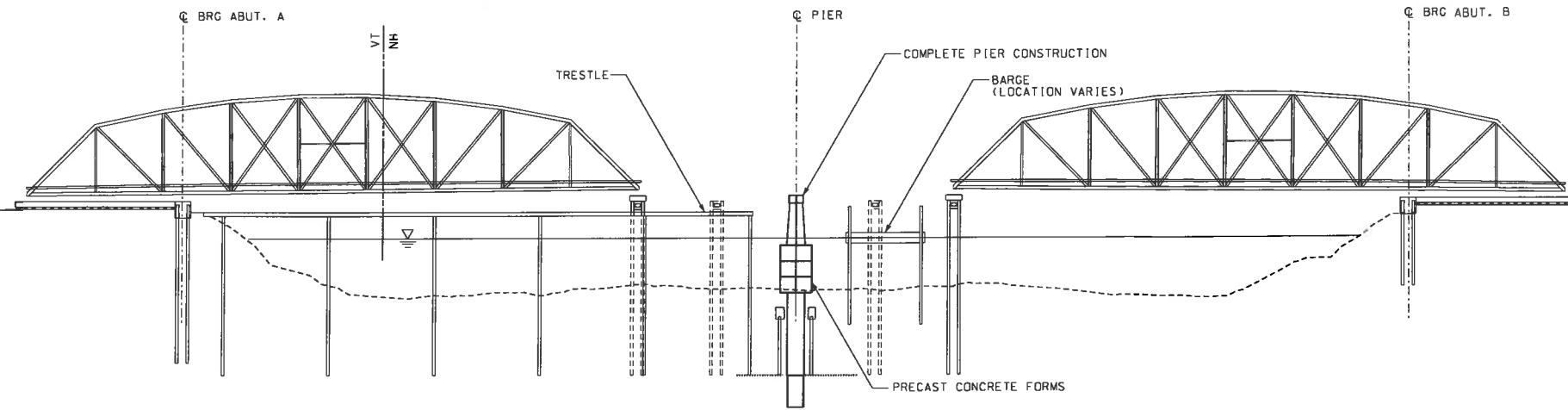
- CONSTRUCTION SEQUENCE**
- STAGE 1:
1. DETOUR TRAFFIC AND CLOSE BRIDGE.
  2. BUILD ACCESS ROAD AND STAGING AREA.
  3. BEGIN TRESTLE CONSTRUCTION AND LAUNCH BARGE.
  4. CONSTRUCT TEMPORARY TRUSS SUPPORT BENTS.
  5. EXCAVATE BRIDGE APPROACHES.
  6. CONSTRUCT SLIDE TRACKS OVER WATER FROM BARGE.
  7. CONSTRUCT SLIDE TRACKS BEHIND EXISTING ABUTMENTS.
- STAGE 2A:
1. SLIDE TRUSSES TO TEMPORARY LOCATIONS.
  2. COMPLETE TRESTLE.
  3. REMOVE INTERMEDIATE SLIDE TRACK SUPPORTS OVER WATER AS REQUIRED FROM BARGE OR TRESTLE.
  4. INSTALL COFFERDAM/TURBIDITY CURTAIN AROUND EXISTING PIER FROM BARGE OR TRESTLE.
  5. REMOVE EXISTING BRIDGE DECK.
- STAGE 2B:
1. REMOVE EXISTING PIER FROM BARGE OR TRESTLE.
  2. INSTALL DRILLED SHAFTS.
  3. REPLACE STRUCTURAL STEEL TRUSS MEMBERS.



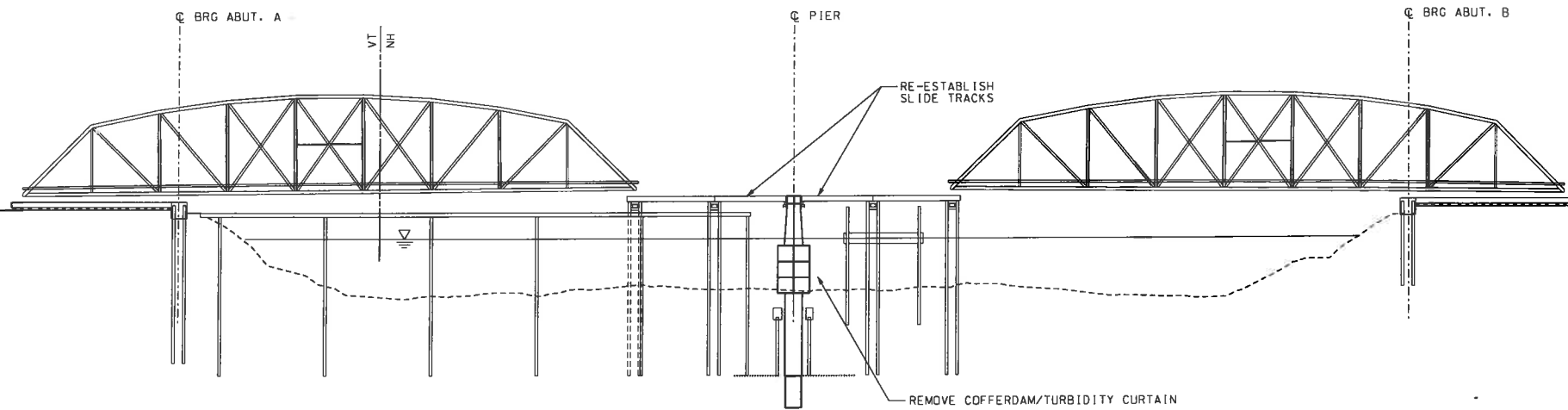
STATE OF NEW HAMPSHIRE													
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN													
TOWN LYME, NH-TIETFORD, VT				BRIDGE NO. 053/112				STATE PROJECT 14460					
LOCATION EAST TIETFORD ROAD OVER THE CONNECTICUT RIVER													
<b>CONSTRUCTION SEQUENCE 1</b>													
REVISIONS AFTER PROPOSAL		DESIGNED		BY		DATE		CHECKED		BY		DATE	
		JGS		LRB		1/2019		CHECKED					
		DRAWN		LRB		1/2019		CHECKED					
		QUANTITIES						CHECKED					
		ISSUE DATE						FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS	
		REV. DATE		04/17/19						12		13	



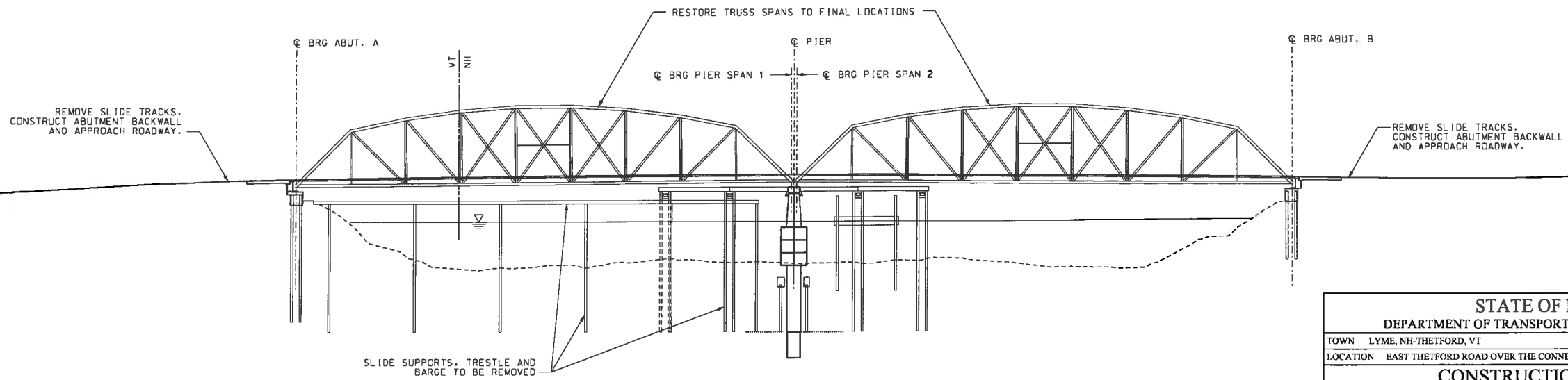
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
BRC	11_const_sq	AS NOTED



STAGE 2C  
SCALE: 1" = 30'



STAGE 2D  
SCALE: 1" = 30'



STAGE 3  
SCALE: 1" = 30'

CONSTRUCTION SEQUENCE (CONTINUED)

- STAGE 2C: 1. INSTALL PRECAST CONCRETE FOOTING FORMS.  
2. CONSTRUCT PROPOSED PIER.  
3. CONSTRUCT PROPOSED BRIDGE DECK.
- STAGE 2D: 1. REMOVE COFFERDAM/TURBIDITY CURTAIN FROM BARGE OR TRESTLE.  
2. REMOVE PORTIONS OF TRESTLE AS REQUIRED.  
3. RESTORE INTERMEDIATE SLIDE TRACK SUPPORTS OVER WATER AS REQUIRED FROM BARGE OR TRESTLE.  
4. CONSTRUCT PROPOSED ABUTMENT BEAM SEATS.
- STAGE 3: 1. SLIDE TRUSSES TO FINAL LOCATIONS.  
2. REMOVE SLIDE TRACKS OVER WATER FROM BARGE.  
3. REMOVE SLIDE TRACKS BEHIND ABUTMENTS.  
4. CONSTRUCT ABUTMENT BACKWALLS.  
5. COMPLETE BRIDGE DECK CONSTRUCTION.  
6. BACKFILL BRIDGE APPROACHES.  
7. REMOVE TRESTLE AND BARGE.  
8. COMPLETE BRIDGE AND APPROACH CONSTRUCTION.  
9. RESTORE TRAFFIC OVER BRIDGE PRIOR TO WINTER SHUTDOWN.
- STAGE 4: 1. DETOUR TRAFFIC AND CLOSE BRIDGE.  
2. BRIDGE PAINTING OPERATIONS TO BE PERFORMED FROM BRIDGE SUPERSTRUCTURE.  
3. RESTORE TRAFFIC OVER BRIDGE.



STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	LYME, NH-THETFORD, VT	BRIDGE NO.	053/112	STATE PROJECT	14460				
LOCATION	EAST THETFORD ROAD OVER THE CONNECTICUT RIVER					CONSTRUCTION SEQUENCE 2		BRIDGE SHEET	
REVISIONS AFTER PROPOSAL		BY	DATE	BY	DATE	OF			
		DESIGNED	IGS	1/2019	CHECKED	FILE NUMBER			
		DRAWN	LRB	1/2019	CHECKED	1-14-2-6			
		QUANTITIES			CHECKED				
		ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO	TOTAL SHEETS			
		REV. DATE	04/17/19		13	13			



SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
BRC	12_const_seq	AS NOTED