NHDOT A001(289), 16396A

US Route 302 over the Sawyer River

Categorical Exclusion

April 2012

TABLE OF CONTENTS

Introduction **2**
Existing Conditions **2**
Roadway 2
Bridge 2
Purpose and Need **3**
Proposed Action **3**
Alternatives to the Proposed Action **3**
No-Build 3
Bridge Rehabilitation 4
Natural Resource Summary **5**
Resources/Issues **5**
Transportation Patterns 6
Safety 6
Community Services 6
Recreation 6
Public Lands 6
Business Impacts 6
Construction Impacts 6
Congressionally Designated Areas, such as Wilderness, Wilderness Study Areas, or National Recreation Areas; 7
Inventoried Roadless Areas or Potential Wilderness Areas 7
Surface Water 7
Water Quality 8
Floodplains, Wetlands, or Municipal Watersheds 9
Wildlife Habitat / Fisheries 10
Endangered Species / Natural Communities 10
Federally Listed Threatened or Endangered Species or Designated Critical Habitat, Species Proposed for Federal Listing or Proposed Critical Habitat, or Forest Service Sensitive Species 10
NH Designated Rivers 11
Research Natural Areas; 11
Non-Native Invasive Species 11
Historical and Archaeological Resources 11
American Indians and Alaska Native Religious or Cultural Sites 12
Coordination / Public Participation **12**
Summary of Environmental Commitments **12**

Figures:

Figure 1 Locus
Figure 2 Wildlife Habitat
Figure 3 Wilderness and Roadless Areas

Attachments:

Photographs
New Hampshire Natural Heritage Correspondence
New Hampshire Fish and Game Correspondence
NHDOT Cultural Resources Conference Report Minutes, 11/12/87, 12/10/87, 2/8/88
New Hampshire Division of Historic Resources Concurrence Letter
Biological Evaluation of the Proposed Replacement of the Route 302 Bridge Over Sawyer River
Preliminary Bridge Plans
Highway General Plan

Introduction

Harts Location, 16396A, involves the replacement of the existing bridge (Br. No. #235/059) that carries US Route 302 over Sawyer River in the Town of Harts Location and associated roadway reconstruction. This portion of roadway was damaged by Tropical Storm Irene in August 2011. The roadway became impassible, and the western side of the northern abutment was severely scoured. The entire abutment sank approximately 18 inches due to the scouring. A temporary bridge was installed on an alignment east of the damaged bridge following the storm, and was erected at the location of a previous bridge that had been removed in 1991, when Route 302 had been re-aligned. The replacement bridge would be in the same location as the damaged bridge, with the temporary bridge remaining in place until the replacement bridge is opened.

The road and bridge lie within the White Mountain National Forest (WMNF), and the entire watershed of the Sawyer River is within the WMNF. The US Route 302 reconstruction would begin approximately 500 feet north of the existing (damaged) bridge and extend south to a point approximately 700 feet south of the existing (damaged) bridge.

The bridge would be constructed using a Design-Build approach, with the New Hampshire Department of Transportation (NHDOT) providing conceptual plans for the Design-Build team. The Project would involve minor vertical profile changes based on the new superstructure depth proposed by the Design-Build team, drainage improvements, and waterway improvements. In general during construction, two lanes of traffic would be maintained on US Route 302 over the detoured alignment using the newly installed temporary bridge. There would be times when the contractor would be allowed to use alternating one-way traffic on the detoured alignment to facilitate the construction of the new northern abutment.

Existing Conditions

Roadway

US Route 302 is a two lane principal arterial roadway through the White Mountain National Forest. The volume is seasonal with notable traffic peaks during the summer vacation, fall foliage, and winter skiing seasons. US Route 302 provides a connection from the Presidential Peaks and Crawford Notch north of the bridge, to the Conway region southeast of the bridge. NHDOT Annual Average Daily Traffic (AADT) data from 2009 indicates a daily volume of 2,200 vehicles per day.

Bridge

The damaged bridge was constructed in 1991 and was a 46 foot wide steel girder with a concrete deck structure with a single span of 95 feet. Currently, the damaged bridge remains in place, but a section of the approach roadway has been removed.

Purpose and Need

The purpose of this project is to improve safety for travelers and provide a long term connection over the Sawyer River. The project is needed because the existing bridge is damaged beyond repair, and the temporary bridge provides only a temporary solution.

Proposed Action

The proposed project includes removing the existing temporary bridge that currently carries US Route 302 over the Sawyer River and restoring US Route 302 to its previous (post-1990) alignment. The proposed replacement bridge would have a 135-foot span, 40 feet longer than the existing damaged span. This span width is the largest possible that can be constructed without interfering with the temporary bridge and roadway. The proposed Abutment B (southern abutment) would be located in a similar location to the existing Abutment B. The proposed Abutment A (northern abutment) would be set back 40 feet from the existing Abutment A to accommodate additional potential future northerly lateral stream migration. The proposed bridge has been designed to pass the 100-year storm with one foot of freeboard. (See General Plans 1-3, attached.)

As part of the construction that erected the temporary bridge and placed US Route 302 on the temporary alignment, an existing parking area for the WMNF was eliminated. As part of the proposed project, the parking area would be reconstructed once US Route 302 has been restored to its previous (post-1990) alignment (see Photo Appendix).

Alternatives to the Proposed Action

Alternatives for the project are constrained by the need to replace the temporary bridge and the infeasibility of rehabilitation, and the need to maintain travel on US Route 302 during construction.

No-Build

The No-Build Alternative was eliminated early in the design process, because it would not meet the Purpose and Need of the project. The temporary bridge carrying US Route 302 over the Sawyer River is not appropriate to keep in perpetuity as the geometric layout of the temporary roadway is substandard. (One of the design criteria for the 1990 project was to improve the roadway geometry.) In addition, the temporary bridge has not been designed for permanent use, would require additional maintenance, and would have a significantly reduced service life.

Removal of the temporary bridge and closure of the roadway would not meet the Purpose and Need of the project, because it would eliminate this important connection on US Route 302.

Bridge Rehabilitation

As with the No-Build Alternative, bridge rehabilitation is not practicable due to the degree of damage to the northern abutment of the existing bridge that occurred during Tropical Storm Irene. The spread footing foundation elements settled due to the lateral stream migration. This lateral stream migration requires a revised abutment location set back from the current channel, which eliminated rehabilitating the existing bridge from consideration.

Natural Resource Summary

The effects of the project relative to the following social, economic, natural and cultural resources/issues have been reviewed. Resources/issues that are not discussed in the body of the report were investigated, however, no impacts were evident, and as such, these resources/issues are omitted from the environmental documentation. The resources and issues deemed applicable for this project are indicated in **BOLD** type.

Because the project would occur in the WMNF and would require a Special Use Permit from the United States Forest Service (USFS), this document also addresses the requirements of USFS Handbook 1909.15, the "National Environmental Policy Act Handbook". Resources listed in 1909.15 are listed in italics below. Effects to these resources could create "Extraordinary Circumstances", which could necessitate the preparation of an Environmental Analysis or an Environmental Impact Statement.

Resources/Issues

Social/Economic	Natural	Cultural
Transportation Patterns **Safety** **Community Services** Displacements Neighborhoods Navigation Energy Needs **Recreation** Air Quality Noise **Public Lands** Hazardous Materials/ Contaminated Materials Land Acquisition Land Use Tax Base **Business Impacts** Farmlands Environmental Justice Utilities **Construction Impacts** ***Congressionally Designated Areas, such as Wilderness, Wilderness Study Areas, or National Recreation Areas*** ***Inventoried Roadless Areas or Potential Wilderness Areas***	Coastal Zone **Surface Water / Water Quality** Groundwater ***Floodplains, Wetlands, or Municipal Watersheds*** **Wildlife Habitat / Fisheries** **Endangered Species / Natural Communities** Essential Fish Habitat ***Federally Listed Threatened or Endangered Species or Designated Critical Habitat, Species Proposed for Federal Listing or Proposed Critical Habitat, or Regional Forester Sensitive Species*** **NH Designated Rivers** **Wild & Scenic Rivers** Stream Rechannelization Forest Lands ***Research Natural Areas*** Non-Native Invasive Species	Aesthetics ***Archaeological Sites, or Historic Properties or Areas.*** Stonewalls ***American Indians and Alaska Religious or Cultural Sites,***

Transportation Patterns

US Route 302 provides the only link between the Presidential Range and Crawford Notch. The nearest alternate route is approximately one hour to the north, through Gorham. As noted under the existing conditions section, AADT data from 2009 indicates a daily volume of 2,200 vehicles per day using this section of US Route 302. The proposed replacement bridge would have a positive effect on transportation patterns.

Safety

The existing damaged bridge followed an alignment that met highway safety and traffic standards, whereas the temporary bridge alignment does not. The project would improve safety for travelers on US Route 302.

Community Services

Community and emergency services would have improved access in the region of the bridge following bridge replacement.

Recreation

The WMNF is a heavily used recreational area. US Route 302 provides a link between Crawford Notch and the Conway region, with the shortest alternate route adding one hour (at least) to the trip. Effects to recreation from the bridge construction would be positive, as it would maintain this important link.

Public Lands

The bridge lies within the WMNF. NHDOT does not hold a right of way for the bridge, so the bridge would be constructed under a Special Use Permit from the WMNF, pursuant to 36 CFR Parts 251, 261, and 295. NHDOT is in the process of a federal land transfer contract for the entire WMNF which would establish easements along all the state maintained routes throughout the Forest.

Acceptance of this Categorical Exclusion by the WMNF must follow a public comment period pursuant to WMNF procedures. Any comments received as a result of this public involvement would be incorporated into the project, as appropriate, as determined by coordination between the WMNF and NHDOT.

Business Impacts

US Route 302 provides an important connector for tourists and travelers in the White Mountains. Maintaining the connection is important for businesses dependent on tourism on both sides of the bridge.

Construction Impacts

The proposed work would require temporary diversion and/or dewatering of portions of the Sawyer River during construction. All appropriate Best Management Practices would be

employed during construction, and water quality in the Sawyer River would be protected during construction. In Addition, all applicable environmental permits and approvals would be obtained prior to work commencing within the Sawyer River.

Congressionally Designated Areas, such as Wilderness, Wilderness Study Areas, or National Recreation Areas;

The project area is not located within any congressionally designated Wilderness Area. The closest Wilderness Areas are the Pemigewasset Wilderness Area, which is located about 3.3 miles northwest of the project, and the Presidential Range Dry River Wilderness Area, which is located about 0.2 miles northeast of the project (Figure 3). Because impacts from this project would be limited to the immediate area of activity, the project would not affect any Wilderness Area.

There are no designated Wild and Scenic Rivers, or tributaries thereof, located within the project area. The Sawyer River is identified in the 2005 White Mountain National Forest Land and Resource Management Plan ("Forest Plan") as eligible for designation under the Wild and Scenic Rivers Act. Within the project area (Management Area 2.1) the river is eligible under the "scenic" classification. Project activities would occur in previously disturbed locations, and are unlikely to affect the eligibility of these streams for designation under the Wild and Scenic Rivers Act.

There are no National Recreational Areas in the White Mountain National Forest.

Inventoried Roadless Areas or Potential Wilderness Areas

The Sawyer River Roadless Area lies southwest of the project, and the Pemigewasset Roadless Area begins on the north side of Sawyer River Road, just north of the project (Figure 3). These areas would not be affected by the project.

Surface Water

The Sawyer River is a fourth order perennial stream with a watershed measuring 23.6 square miles. The entire watershed lies within the WMNF, and is steep and very flashy. The river is classified under the Cowardin wetland classification system as R3RB2, or upper perennial, rock bottom, rubble substrate. Under the Rosgen Classification of Natural Rivers system, the river has the following characteristics.

Table 1 Rosgen Classification River Characteristics

Bankfull width	60 feet
Bankfull depth	6.5 feet
Width/depth	9.2
Flood prone area (width at 2x bankfull depth)	139 feet
Entrenchment Ratio	2.3
Sinuosity (measured from USGS topo)	1.1
Slope (measured from USGS topo)	0.039
Substrate	boulders

Bankfull width is based on a 1.5 year storm, calculated using HEC RAS hydraulic analysis. The characteristics of the river most closely match the Rosgen classification B2, or moderately incised, wide and shallow, with a moderate slope and a colluvial valley. The crossing lies at a point where the gradient of the river flattens out, as it approaches its confluence with the Saco River, ¼ mile downstream. The river substrate is bouldery, and under low flow conditions most of the boulder substrate is not submerged.

The replacement bridge design considered many factors to improve the hydraulic characteristics of the site. The bridge span would be lengthened by more than 40% to increase the hydraulic opening and reduce the likelihood of debris accumulation at the stream crossing. In addition, an engineered stone slope protection system is proposed at the bridge in order to withstand the stream velocities during the design flood event and provide a uniform channel geometry.

Based on the hydraulic analysis of the crossing, to protect the abutments from future scour, stone channel protection would be installed to a depth of 5.1 feet. To accommodate aquatic organism passage and create a more natural streambed, the areas next to the abutments would be excavated to a depth of 6 feet, with an additional one foot of stockpiled streambed material to be placed on top of the scour stone. The proposed project would involve 5,366 square feet of impact to the bed of the river, and 14,550 square feet of impact to the river bank (under the jurisdiction of the New Hampshire Department of Environmental Services, [NHDES]). for excavation and installation of scour protection. The project requires a major impact dredge and fill permit from NHDES, and qualifies under the Army Corps of Engineers (ACOE) NH Programmatic General Permit with the so no individual permit would need to be obtained from the ACOE.

Water Quality

The Federal Water Pollution Control Act (PL92-500, commonly called the Clean Water Act [CWA]), as last reauthorized by the Water Quality Act of 1987, requires each state to submit two surface water quality documents to the U.S. Environmental Protection Agency (EPA) every two years. Section 305(b) of the CWA requires submittal of a report (commonly called the "305(b) Report") that describes the quality of its surface waters and an analysis of the extent to which all such waters provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities in and on the water. The second document is typically called the "303(d) list" which is so named because it is a requirement of Section 303(d) of the CWA. The 303(d) list includes surface waters that are:

a. Impaired or threatened by a pollutant or pollutant(s)
b. Not expected to meet water quality standards within a reasonable time even after application of best available technology standards for point sources or best management practices for nonpoint sources and

c. Require development and implementation of a comprehensive water quality study (called a Total Maximum Daily Load or TMDL study) that is designed to meet water quality standards.

New Hampshire's process for assessing surface waters is detailed in the "Consolidated Assessment and Listing Methodology" (CALM). The CALM interprets the NH surface water quality regulations (Env-Wq 1700) and identifies seven designated uses for New Hampshire surface waters.

The Sawyer River has no impairments identified in the 2010 303(d) list. Because of its location in the White Mountain National Forest, the Sawyer River is an Outstanding Resource Water (ORW), which provides it protection from degradation to water quality through NH RSA 485-A and Env-Wq 1700. Under the rules (Env-Wq 1700),

> (b) Water quality shall be maintained and protected in surface waters that constitute ORW, except that some limited point and nonpoint source discharges may be allowed providing that they are of limited activity which results in no more than temporary and short-term changes in water quality. "Temporary and short term" means that degradation is limited to the shortest possible time. Such activities shall not permanently degrade water quality or result at any time in water quality lower than that necessary to protect the existing and designated uses in the ORW. Such temporary and short term degradation shall only be allowed after all practical means of minimizing such degradation are implemented.

It is anticipated that the bridge replacement would not incur any degradation of surface or groundwater quality. All appropriate BMPs would be used during construction to prevent degradation of the river.

Floodplains, Wetlands, or Municipal Watersheds

Executive Orders (EOs) 11988 and 11990 direct federal agencies to avoid adverse impacts to floodplains or wetlands, which are defined in the executive orders. Implementation of Forest Plan management direction and Best Management Practices would ensure that any adverse impacts to floodplains and wetlands would be minor. Field review (monitoring) of similar projects validates a lack of detrimental resource effects from similar activities, and detrimental effects to floodplains are not expected from this project due to use of previously disturbed areas and the temporary nature of the project. As described above, a Standard Dredge and Fill Wetland permit from NHDES would be required for implementation of this project.

The Forest Plan indicates that high quality water would be maintained for public water supplies (Plan p. 1-18). This decision would not affect municipal watersheds because there are no municipal watersheds in the area.

There is no floodplain mapped by the Federal Emergency Management Authority (FEMA) associated with the Sawyer River. The hydraulic study conducted for the project calculated the water surface elevations for the 100-year storm, and the bridge has been designed to accommodate the 100-year flood. There are no wetland resources in the project area other than the river and river banks (regulated under New Hampshire wetlands law).

Wildlife Habitat / Fisheries

The White Mountain National Forest hosts a wide variety of species, including large mammals such as white tailed deer, moose, and black bear, fisher, and other mammals, song birds and raptors, reptiles and amphibians. The New Hampshire Fish and Game Department (NHFG) 2006 Wildlife Action Plan recognizes the Sawyer River as Tier 1, top ranked habitat in New Hampshire (Figure 2) (See http://www.wildlife.state.nh.us/Wildlife/wildlife_plan.htm for additional information regarding the Wildlife Action Plan). US Route 302 is an existing roadway, and while the road creates a fracture in an otherwise contiguous wildlife habitat area, there are no impacts to wildlife species anticipated to occur from the replacement of the bridge. NHFG was contacted regarding fisheries concerns in the Sawyer River, and responded that brook trout, blacknose dace, longnose dace and slimy sculpin all occur there. NHFG requests that there be no instream work between September 1 and October 15 to minimize the impact to migrating trout. The USFS further requests that if work is conducted between October 15 and April 1, to minimize impacts to deposited trout eggs, best management practices to reduce sedimentation into Sawyer and the Saco Rivers must be implemented.

This decision is consistent with this Migratory Bird Treaty Act, Executive Order 13186, and the Memorandum of Understanding between the US Forest Service and US Fish & Wildlife Service to promote the conservation of migratory birds. A Biological Evaluation was prepared for the proposed project by the USFS that determined that there would be no adverse effects to any species protected under the Act (attached).

Endangered Species / Natural Communities

The New Hampshire Natural Heritage Bureau provided information that although there was a record of a state listed rare species in the vicinity of the bridge (American marten), they did not expect any impacts to the species from the proposed project (see attached correspondence).

Federally Listed Threatened or Endangered Species or Designated Critical Habitat, Species Proposed for Federal Listing or Proposed Critical Habitat, or Forest Service Sensitive Species

The Endangered Species Act requires that federal activities not jeopardize the continued existence of any species federally listed or proposed as threatened or endangered, or result in adverse modification to such species' designated critical habitat. As required by this Act, potential effects of this decision on federally listed species were analyzed and documented in the Biological Evaluation.

As detailed in the Biological Evaluation, it was determined that there are no federally listed species or suitable habitat within the project area. Therefore the project as proposed would have no direct, indirect, or cumulative effects to federally listed species.

The WMNF Forest Plan also identifies "Regional Forester Sensitive Species" (RFSS). These are species that occur in the WMNF and meet certain criteria for rarity or vulnerability. Potential effects of the project on RFSS also have been analyzed and documented in the Biological Evaluation. Based on known occurrence records and habitat conditions, no RFSS flora or fauna currently exist within the project area. Therefore, there would be no direct, indirect or cumulative effects from the project proposal to RFSS plants or animals.

The Biological Evaluation notes that bats have been known to roost in bridge joints during the summer months, therefore there is a very small potential for bats to utilize the temporary bridge or the remaining section of the damaged bridge. Surveys to determine bat presence should be conducted prior to the removal of the temporary or damaged bridge, unless removal of the bridges occurs during bat hibernation (between September 15 and May 15).

NH Designated Rivers

The Saco River, approximately ¼ mile downstream of the proposed project, is designated as a "natural" river under NH RSA 483, the New Hampshire Rivers Management and Protection Program. Normally, the local advisory committee would be consulted during project development and for the Standard Dredge and Fill wetland permit, but the advisory committee for the Saco River is not currently active.

Research Natural Areas;

There are no Research Natural Areas in the project area. The closest Research Natural Area, the Nancy Pond Research Natural Area, is located about 1.6 miles northwest of the project. The impacts would be limited to the immediate area of activity and would not affect any Research Natural Areas.

Non-Native Invasive Species

The Federal Noxious Weed Act requires cooperation with State, local, and other federal agencies in the management and control of non-native invasive species (NNIS); Executive Order 11312 requires all pertinent federal agencies (subject to budgetary appropriations) to prevent the introduction of NNIS. This project would meet the intent of this law and EO by incorporating all pertinent Forest Plan Standards and Guidelines to ensure the management and control of NNIS. NNIS would be delineated to ensure that all appropriate measures are included in the construction contract to prevent the spread of these species.

Historical and Archaeological Resources

The temporary bridge currently in use is east of the damaged bridge and lies on the alignment that US Route 302 used to follow, and uses, in part, the abutment from the bridge that had been there previously, which dated from 1926. A railroad bridge (built 1875) directly downstream of the bridge was also damaged during the tropical storm. Repairs to the railroad bridge are not included in this Categorical Exclusion, and there are no impacts to the railroad bridge anticipated to occur as a result of the US Route 302 bridge replacement.

When US Route 302 was re-aligned in the early 1990's, the existing bridge and surrounding area were reviewed by the State Historic Preservation Officer (SHPO). SHPO determined that the existing bridge at that time, built in 1926, was not eligible for the National Register of Historic Places, and that there were no prehistoric or historic archaeological resource concerns in the project area. Minutes from cultural resource agency meeting Conference Reports are attached.

The current project was reviewed at a cultural resources meeting on February 9, 2012, and it was determined that the proposed bridge replacement would result in No Historic Properties Affected. A request was made that the southern abutment under the temporary bridge (from the bridge erected in 1926) be left in place.

American Indians and Alaska Native Religious or Cultural Sites

No known Native American religious or cultural sites are present in the project area. Consultation has occurred with the SHPO as described above.

Coordination / Public Participation

Coordination with natural and cultural resource agencies for the proposed project occurred on the dates listed below.

Date	Meeting
January 18, 2012	Natural Resource Agency Meeting
February 9, 2012	Cultural Resource Agency Meeting

Summary of Environmental Commitments

The following environmental commitments have been made for this project. The bureaus/agencies responsible for implementing the environmental commitment are listed parenthetically after each commitment.

1. All conditions in the wetland permit shall be followed. (NHDOT Environment/Design/Construction)
2. All conditions in the Shoreland Water Quality Protection Act permit shall be followed. (NHDOT Environment/Design/Construction)
3. A Special Use Permit pursuant to 36 CFR Parts 251, 261, and 295 RIN 0596–AB74 regarding the White Mountain National Forest shall be acquired prior to construction. All work shall be conducted within the limits of the Special Use Permit, including Construction Staging. All terms and conditions of the Special Use Permit shall be met. The Special Use Permit would incorporate the following Forest Plan Standards.

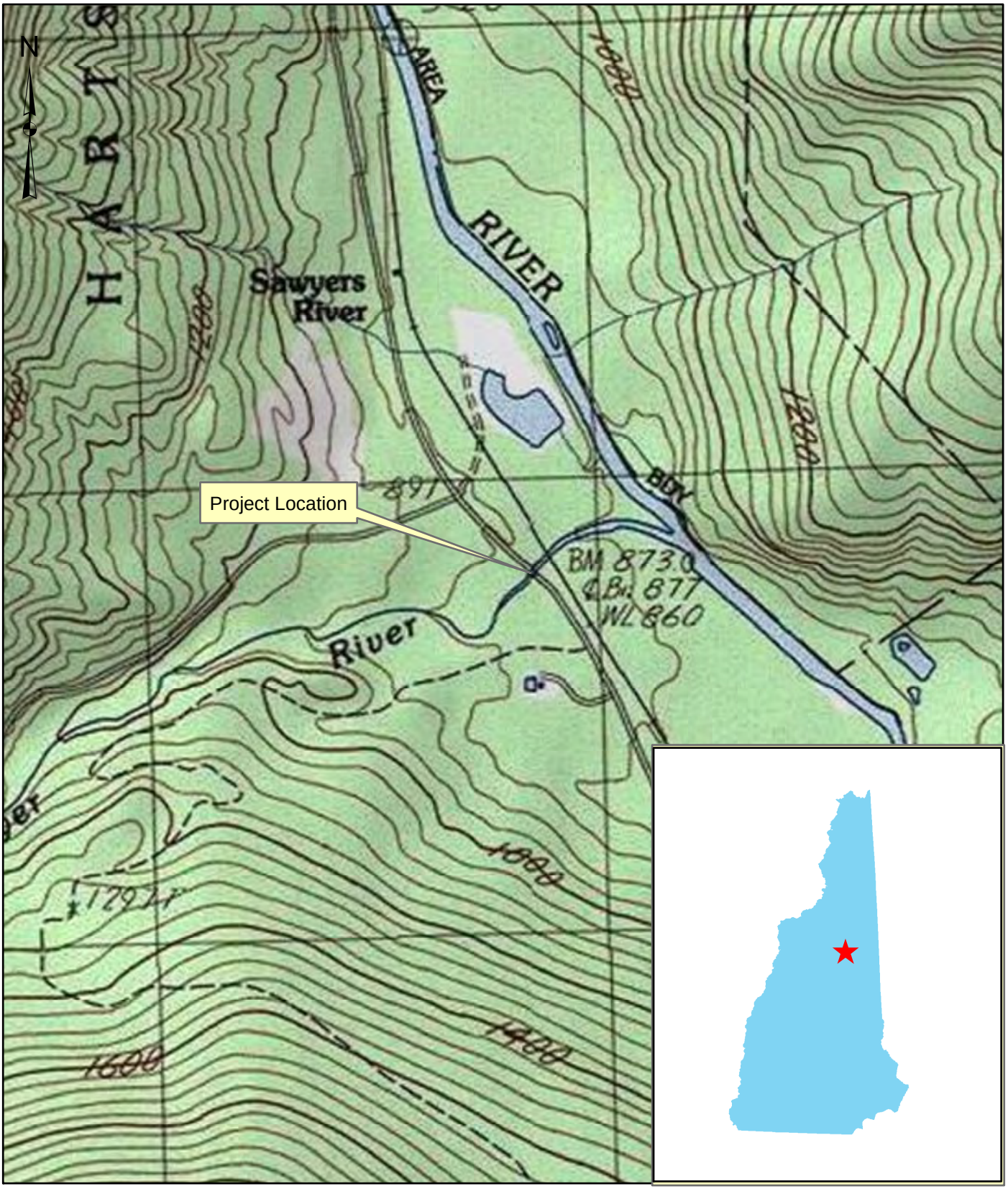
    S2. Forest projects or approvals must consider weed prevention measures.
    S3. In revegetation or rehabilitation efforts native or non-persistent species must be used.

S4 Gravel and fill must come from weed free sources.

S5 When sources of weed free mulch and seed are available locally at a reasonable cost, they must be used on erosion control projects.

S6 Heavy equipment must be visibly free of seeds or plant material prior to entering the Forest for project work. In order to minimize the spread of existing invasive plants, heavy equipment must be cleared to be visibly free of seeds or plant material when moving between project units if invasive plants exist in areas being vacated, or if unites have not been surveyed for invasive plants. (US Forest Service – WMNF / Design / Right-of-Way / Construction)

4. The southern abutment of the old (1926) bridge shall be left intact when the temporary bridge is removed. (NHDOT Environment/Design/Construction)
5. The parking area at the base of the Sawyer River/Livermore Road is part of the historic Livermore CCC Camp. No staging or parking of heavy equipment at this site shall occur. (NHDOT Environment/Design/Construction)
6. There shall be no instream work between September 1 and October 15 to minimize the impact to migrating trout. (NHDOT Environment/Design/Construction)
7. If work is conducted between October 15 and April 1, to minimize impacts to deposited trout eggs, best management practices to reduce sedimentation into Sawyer and the Saco Rivers shall be implemented. (NHDOT Environment/Design/Construction)
8. Surveys to determine bat presence in the bridge joints of the temporary bridge shall be required prior to bridge removal, unless removal of the bridge occurs during bat hibernation (between September 15 and May 15). (NHDOT Environment /Construction)
9. All appropriate BMPs to protect water quality in the Sawyer River during construction shall be implemented. (NHDOT Environment/Design/Construction)
10. A Non Native and Invasive Species survey shall be conducted to ensure that all appropriate measures are included in the contract to prevent the spread of these species. (NHDOT Environment/Design/Construction)
11. Acceptance of this Categorical Exclusion by the WMNF must follow a public comment period pursuant to WMNF procedures. Any comments received as a result of this public involvement shall be incorporated into the project, as appropriate, as determined by coordination between the WMNF and NHDOT. (US Forest Service – WMNF /Design/Construction)



NHDOT 16396A

HARTS LOCATION

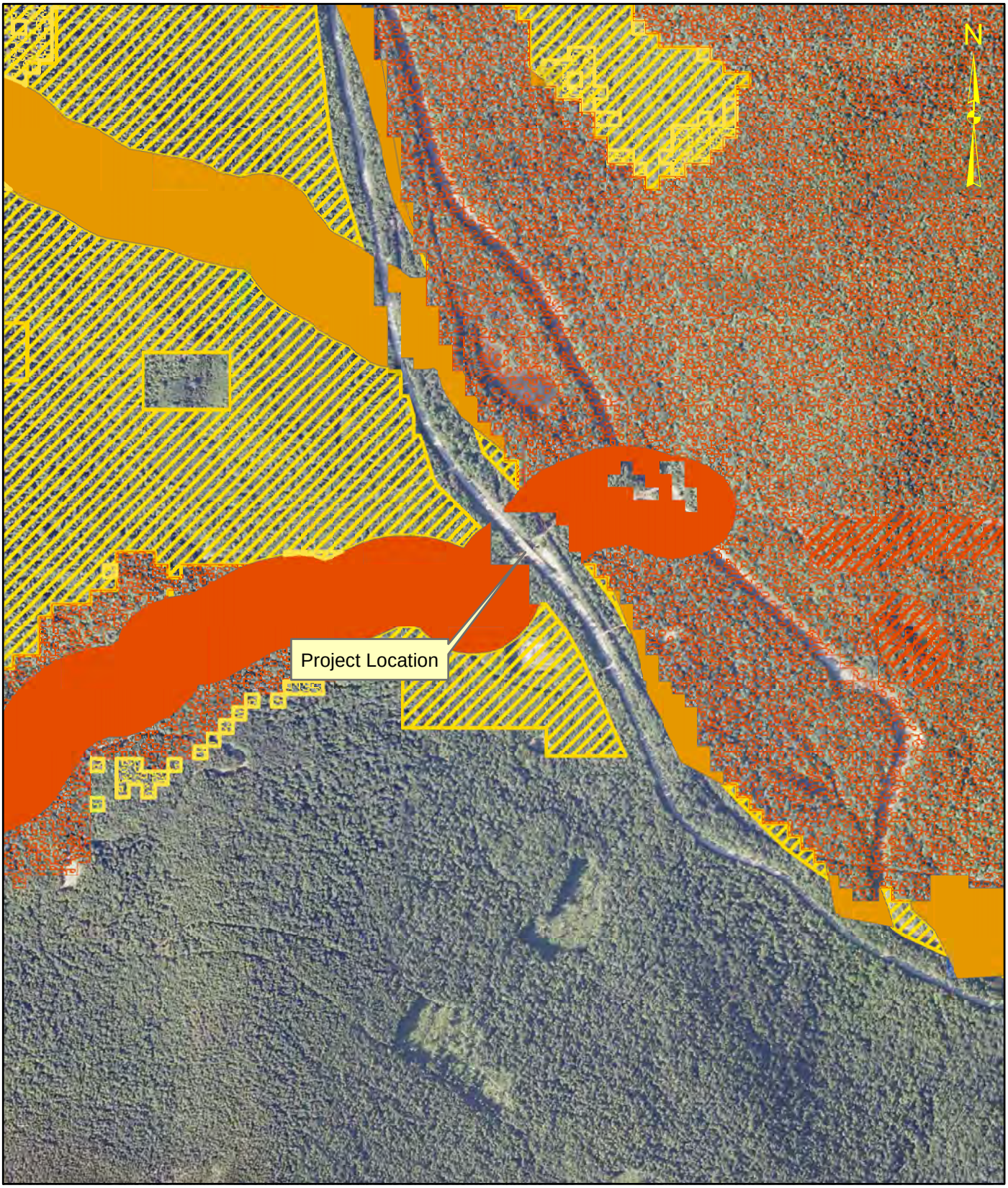
US ROUTE 302

OVER THE SAWYER RIVER

SCALE :	DATE :	FIGURE :
1:12,000	FEBRUARY 2012	1

McFarland Johnson

Path



2010 Wildlife Action Plan Tiers

- Tier 1 EO addin
- Tier 1 EO elevated
- Tier 1 Matrix forest
- Tier 1 Top-ranked in NH
- Tier 2 Matrix forest
- Tier 2 Top-ranked in region
- Tier 2 Top-ranked in wsgroup
- Tier 3
- Tier 3 Matrix forest
- Tier 3 NHB elevated
- Tier 3 Supporting Landscape

NHDOT 16396A

HARTS LOCATION

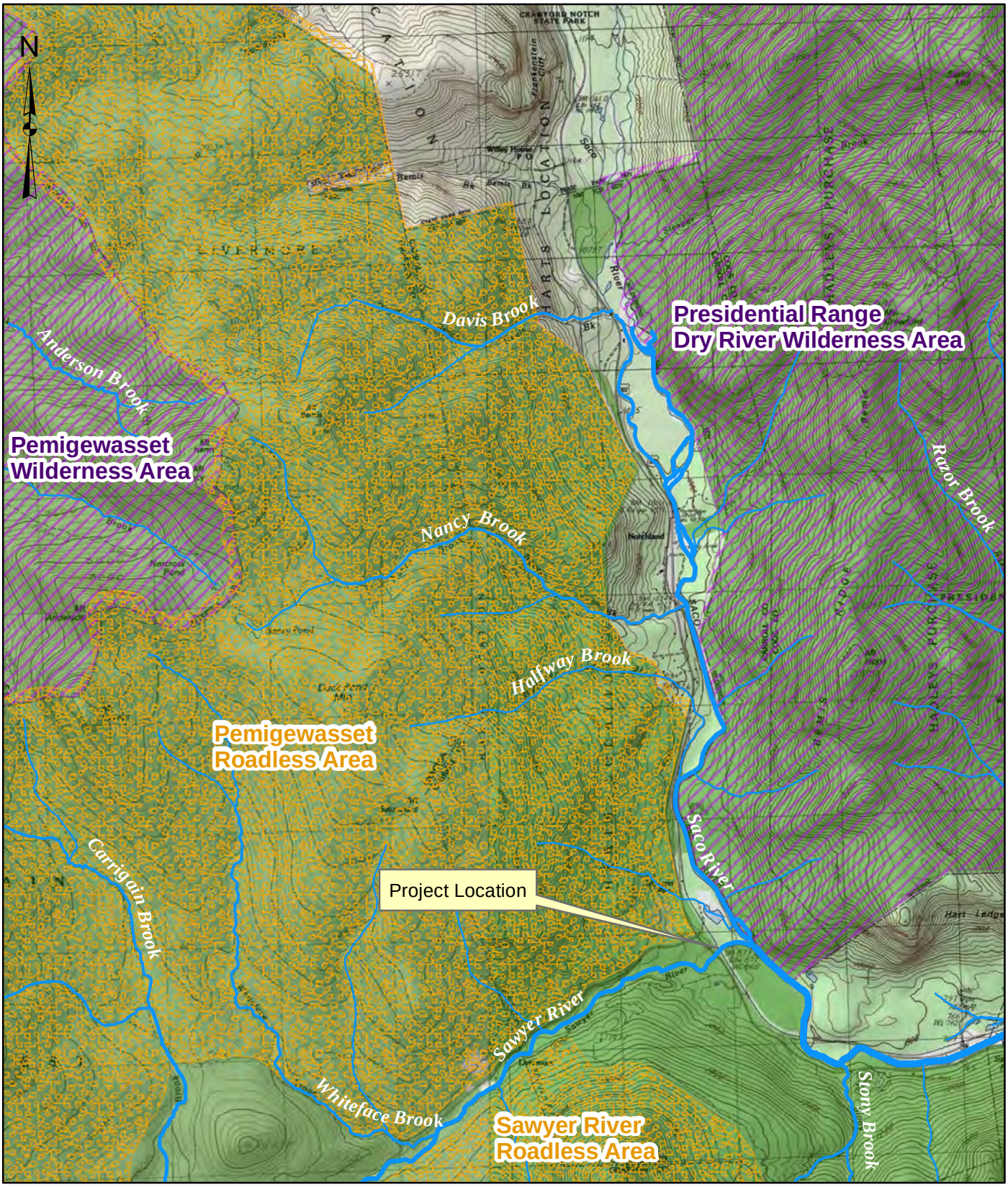
US ROUTE 302

OVER THE SAWYER RIVER

SCALE :	DATE :	FIGURE :
1:12,000	FEBRUARY 2012	2

McFarland Johnson

Path



Legend

- White Mountain National Forest
- Roadless Areas
- Wilderness Areas

Data Source: Granit; WMNF Forest Plan
http://www.fs.fed.us/r9/forests/white_mountain
/projects/forest_plan_revision/maps_data.html

NHDOT 16396A

HARTS LOCATION

US ROUTE 302
OVER THE SAWYER RIVER

SCALE :	DATE :	FIGURE :
1:48,000	APRIL 2012	3

McFarland Johnson

Path

1. Aerial view of damaged bridge, temporary bridge, and railroad bridge. View East. (Date uncertain)

2. Sawyer River, view upstream (southwest) (September 21, 2011)

3. Damaged bridge deck, view south from north bank. (September 21, 2011)

4. Bridge deck damage after August 30 storm (September 4, 2011)

5. Bank erosion, north bank, view upstream (September 21, 2011)

6. View northeast of damaged bridge. (September 21, 2011)

7. Floodplain on south side of river, with material deposited during high flows. (September 21, 2011)

8. Upstream of bridge, north bank of river, showing erosion caused by the August 30 2011 storm. (September 21, 2011)

9. Old bridge abutment (1926) under southern temporary abutment, to remain in place following removal of temporary bridge.

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

To: Kevin Nyhan, NH Department of Transportation
PO Box 483, 7 Hazen Drive

Concord, NH 03303-0483

From: NH Natural Heritage Bureau

Date: 11/22/2011 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 9/6/2011

NHB File ID: NHB11-1845 **Applicant:** Kevin Nyhan

Location: Harts Location
US Route 302 over Sawyer River

Project Description: EMERGENCY replacement of bridge no. 235/059 (US Route 302 over Sawyer River). A temporary bridge is currently in use.

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 9/6/2011, and cannot be used for any other project.

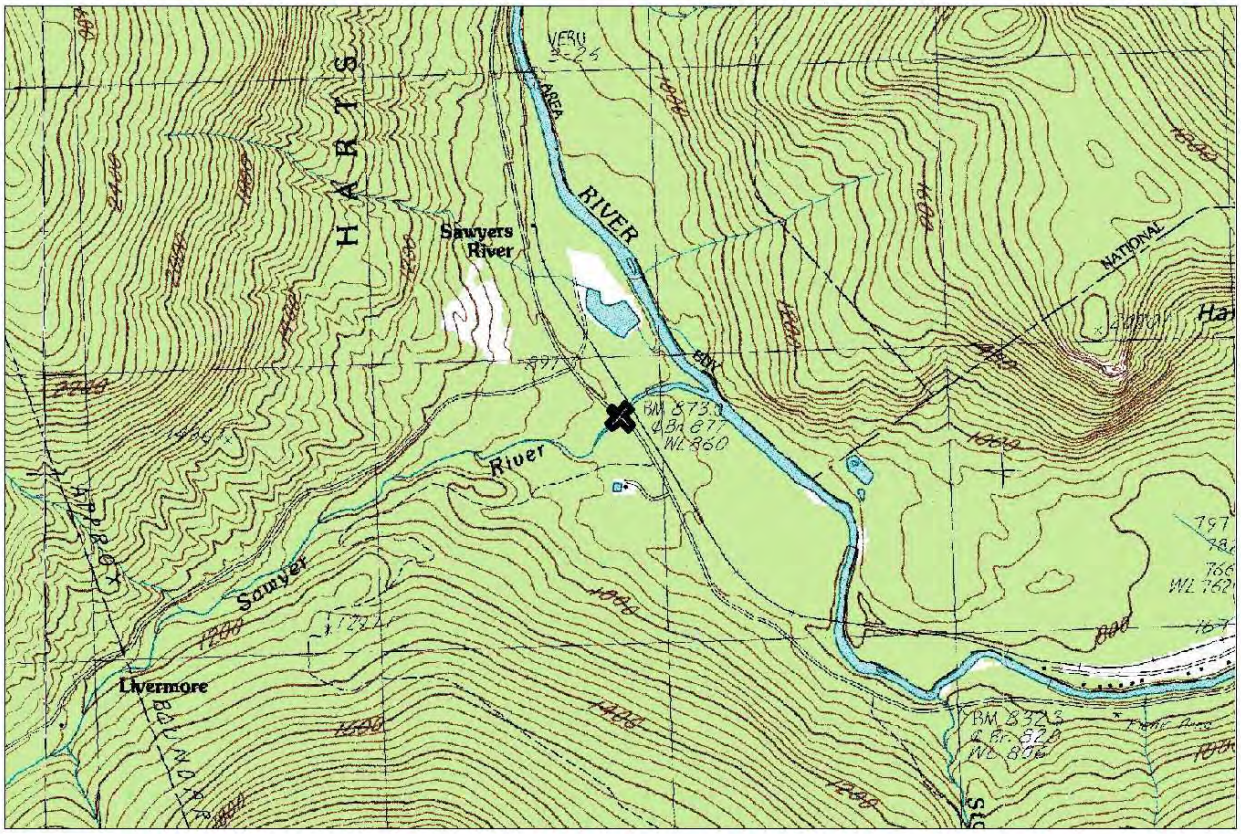
Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
PO Box 1856
Concord NH 03302-1856

MAP OF PROJECT BOUNDARIES FOR: **NHB11-1845**

NHB11-1845

NH Natural Heritage Bureau



1:18000

Valid for one year from this date: 22 Nov 2011

Vicki Chase - RE: Sawyer River Bridge, Hart's Location

From: John A Magee <john.a.magee@wildlife.nh.gov>
To: Vicki Chase <vchase@mjinc.com>
Date: 2/2/2012 8:46 AM
Subject: RE: Sawyer River Bridge, Hart's Location
CC: "Timmins, Dianne" <Dianne.Timmins@wildlife.nh.gov>

Oh, I am glad you asked. To minimize the impact to migrating and spawning trout and also to any trout eggs that may be in the River, it would be best to have no instream construction between September 1 and April 1. If that is not going to be practicable, then I would suggest no instream work between September 1 and October 15 to minimize the impact to migrating trout (they migrate during that time period to spawn).

John

John Magee
Fish Habitat Biologist
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301
p (603) 271-2744
f (603) 271-1438
john.a.magee@wildlife.nh.gov

From: Vicki Chase [mailto:vchase@mjinc.com]
Sent: Thursday, February 02, 2012 8:39 AM
To: John A Magee
Subject: RE: Sawyer River Bridge, Hart's Location

Hi John, will do. I will also print it and submit with the wetland application.

Did you have any further thoughts about conditions for timing of construction?

Vicki Chase• Environmental Analyst• Environmental
53 Regional Drive • Concord, NH 03301
Office: 603-225-2978 •

>>> John A Magee <john.a.magee@wildlife.nh.gov> 2/2/2012 8:36 AM >>>

Hi Vicki. That sounds reasonable to me. I hope the River doesn't move so much in the future that it impacts the bridge.

Please send this email chain to the wetlands inspector and cc me.

John

John Magee
Fish Habitat Biologist
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301
p (603) 271-2744
f (603) 271-1438
john.a.magee@wildlife.nh.gov

From: Vicki Chase [mailto:vchase@mjinc.com]
Sent: Tuesday, January 31, 2012 1:33 PM
To: John A Magee
Subject: RE: Sawyer River Bridge, Hart's Location

Hi John,

I asked our bridge engineer this question, and his response is that the bridge is likely to have another northward migration within the bridge's service life. The bridge span extension from 95' to 135' is intended to accommodate that migration, along with deeper bridge foundations.

The bridge location is close to the mouth of the Saco River. As you can see on the USGS topo, the terrain starts to level out as it approaches the Saco. I do not have a profile for the river, but the bridge is likely at a point where sediment is deposited from upstream as the terrain levels out. So, while the permanent long term stability of the river is not a certainty, the proposed bridge accommodates that uncertainty to the extent possible and practicable.

Vicki

What do you think the possibility of another northward migration of the river (or any lateral migration of the river) is during another storm? My sense (listening to a number of fish biologist and geomorphologists) is that many White Mountain rivers have HUGE sediment loads and therefore they have a tendency to migrate laterally pretty easily. That would be my biggest concern with rebuilding the bridge. Also, if the site is a place where sediment deposition tends to occur, that makes the river more prone to lateral migration.

John Magee
Fish Habitat Biologist
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301
p (603) 271-2744
f (603) 271-1438
john.a.magee@wildlife.nh.gov

From: Vicki Chase [mailto:vchase@mjinc.com]
Sent: Tuesday, January 31, 2012 10:45 AM
To: John A Magee
Subject: RE: Sawyer River Bridge, Hart's Location

Thanks John.

The bridge failure was related to the northward migration of the river during the rain event. The replacement bridge is proposed to have a span of 135 feet, replacing a 95 foot span of the damaged bridge. The 135 foot span is the longest possible given the goal of keeping the temporary bridge open during construction (a longer span would run into the temporary bridge). Bankfull width just upstream of the bridge is 70 feet, using HEC-RAS to calculate the water elevation for a 1.5 year storm.

The elevation of the stream substrate under the bridge will match the elevation and slope upstream and downstream of the bridge.

I am trying to get information from USGS on what the recurrence interval of the storm was at this location. As I am sure you know, in Vermont it was estimated to be over the 100 year.

Vicki

Vicki Chase• Environmental Analyst• Environmental
53 Regional Drive • Concord, NH 03301
Office: 603-225-2978 •

Vicki Chase• Environmental Analyst• Environmental
53 Regional Drive • Concord, NH 03301
Office: 603-225-2978 •

>>> John A Magee <john.a.magee@wildlife.nh.gov> 1/31/2012 8:34 AM >>>

Hi Vicki. I don't know this site well, and I have not been involved with discussions about the bridge replacement. However, I will offer the following thoughts:

1) I think it is very important to know why (i.e., the fluvial mechanisms) the bridge failed during Irene, and specifically address them in the design. If sediment transport led the failure during the flood, then that should be addressed. This will lead to a better long-term solution.

2) Stream substrate and elevation: is the elevation of the substrate under the bridge influenced by the bridge (existing or proposed bridge)? If so, then that needs to be addressed in the design. You don't want to place the substrate at an elevation that will ultimately influence sediment transport at the site, potentially leading to bridge failure in the future.

3) If its natural substrate under the proposed bridge, I suspect it will be passable by aquatic organisms.

I don't know what fish species are there, so with this email, I ask Dianne Timmins (cc'd here) to supply a list of fish species in the Sawyer River (or the Saco since it is right next to the bridge in question) by replying to all.

Thank you for contacting me.

John

John Magee
Fish Habitat Biologist
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301
p (603) 271-2744
f (603) 271-1438
john.a.magee@wildlife.nh.gov

From: Vicki Chase [mailto:vchase@mjinc.com]
Sent: Monday, January 30, 2012 3:49 PM
To: John A Magee
Subject: Sawyer River Bridge, Hart's Location

John,

McFarland Johnson is assisting NHDOT with engineering services and permitting for the replacement of the Sawyer River Bridge in Hart's Location. As you may know, this bridge was irreparably damaged from the heavy flows during the rain from hurricane Irene on August 30, 2011. A temporary bridge was installed following the event, on September 17, next to the damaged bridge. A permanent bridge is proposed to be constructed in the location of the damaged bridge. The bridge is proposed to be built using the Design Build project, with NHDOT providing preliminary designs and permits to the design engineers.

Attached is an aerial photograph and USGS topo map depicting the bridge location. The aerial depicts the damaged bridge and the temporary bridge.

We are requesting your guidance in any fisheries concerns or constraints regarding the bridge replacement. The project was presented at the January 18 natural resource meeting at NHDOT, and concerns expressed during that meeting are being addressed in the bridge design. (The stream substrate elevation will match the existing elevation, and natural streambed material will be used to top dress the areas to be protected with Class B ripap).

Thanks for your attention. Please let me know if you have any questions.

Vicki Chase• Environmental Analyst• Environmental
53 Regional Drive • Concord, NH 03301
Office: 603-225-2978 •

ENVIRONMENTAL SERVICES SECTION

NOV. 12 1987

CONFERENCE REPORT

PROJECT Statewide (Town or City) _____ (Federal Number) _____ (State Number)

DATE OF CONFERENCE: November 12, 1987 CONFERENCE TYPE: X MEETING ____ TELEPHONE

LOCATION OF CONFERENCE: Conference Room #114, John O. Morton Building

ATTENDED BY:

DEPARTMENT OF TRANSPORTATION	(Organization)
B. Hauser	
R. Pringle-Gleske	S. Wallace - SHPO
B. Grace	G. Hume - SHPO
D. Geiger	L. Wilson - SHPO
C. Hood	H. Kinter - FHWA
	S. Nicholson - FHWA
B. Roy	L. Monroe

SUBJECT: Monthly Review Meeting

NOTES ON CONFERENCE:

Discussions at the meeting may be summarized as follows:

1. Historic Bridge Inventory - H. Kinter commented on format for consent DOE used for High Pratt trusses; information provided was good, but not enough; Harry suggests adding an explanation of the rating system criteria and specifics relative to span length, development period, etc.

2. Lincoln, BHZ-259(1), 10202 - Becky described this bridge widening project and identified old RR bed (East Branch & Lincoln) within existing C.A.R.O.W.; local historic society has reviewed and has no objection to project; "no resources " memo signed by FHWA/SHPO.

3. Harts Location, BRF-032-1(20), P-4366 - Bill Grace described project and identified chimney remains and old foundations (probably early 20th century); it was suggested that R-O-W perform a deed (title) search; G. Hume will make a walkover of site near river next week to check for archeological potential; the existing bridge on US 302 was built in 1926 - a historic evaluation will be necessary.

4. Raymond, BRZ-259(1), 10204 - Becky described this bridge replacement project; G. Hume feels there is archeological potential along Lamprey River - he will make field inspection; R-O-W take and easement from farm field is necessary - might be historic Prescott farm; consultant will be asked to review this property and another residential structure in the project area; a historic evaluation of the existing bridge will be necessary.

5. Derry, HES-305(2), 10292 - Bill Roy summarized recent comments received at Public Info meeting (strong project support, except for mobile home park residents); SHPO's concerns

3. Raymond, BRZ-383(3), 10204 - L. Monroe described the Prescott house as remarkably intact and extraordinarily significant as a historic/architectural resource; a full DOE report is recommended; H. Kinter emphasized the need for a clear boundary delineation (excluding the recent subdivision); a determination of eligibility for the bridge was delayed pending a review of other similar through plate girders; G. Hume reported that his field inspection reveals no archeological potential within project limits due to seasonal flooding and man-made disturbances; a stone wall along the Prescott field will probably be impacted - a determination of effect will be needed; L. Monroe will submit proposal for DOE.

4. Deerfield, BRS-251(7), 10159 - G. Hume was reminded of need for archeological survey form for mill site.

5, Walpole-Westminster, DE-0200(802), 10779 - B. Hauser Noted that MOA has been sent to the Advisory Council.

6. Harts Location, BRF-032-1(20), P-4366 - G. Hume reviewed old chimney foundations, etc. in field - appeared to be early tourist camp; Billie Hoornbeek of USFS confirmed site as a CCC camp; Gary & Billie agree that no new info can be gained above & beyond what is evident in field; site is on Forest Service land; G. Hume has no prehistoric arch. concerns; before memo is prepared, G. Hume wants to see results of Forest Service's report on other CCC camps on Forest Service land in N. H.; eligibility of bridge needs to be deferred until all through plate girders can be evaluated.

7. Bedford, HES-018-1(19), 10290 - G. Hume made field investigation - some question about identity of resources; a deed search by ROW was suggested to determine any historical significance; if none, no resources present memo will be appropriate.

8. Plaistow, BRF-019-1(20), 10083 - Based on a field review by L. Wilson, the nummber of properties requiring further review has been reduced from that suggested in the original assessment of resources; the new recommendations for documentation efforts are based on SHPO's letter of 11/25/87; one property (#9-Bingham house) will need a DOE report; #14 & #15 need documentation of non-eligibility; C. Closs will be asked to perform work.

9. Stewartstown-Canaan, BRS-277(5), S-4159 - The bridge is historic, as are 2 buildings adjacent to the bridge on the N. H. side of the Conn. River; DOE's will be needed; the bridge Team will evaluate the bridge, a consultant will do the houses; G. Hume and a Vermont state archeologist will field review the project area; a gazebo located in a small park will be inspected by G. Hume for significance.

10. Derry, HES-305(2) 10292 - S. Wallace advised that a letter stating no adverse effect is coming, with a recommendation that the driveway to the Frost house be moved; SHPO believes that this will avoid taking the tree in front of the house; this recommendation is predicated on a recent revelation that DRED has initiated an effort to save the tree.

11. New SHPO Position - S. Wallace provided a copy of a job specification which he feels is appropriate for the proposed position; a meeting with J. Crouse of FHWA and H. Martin of NHDOT is now necessary to discuss funding.

12. Salisbury, BRZ-401(1), 10205 - No potential historical/architectural resources identified other than bridge; the extent of proposed work causes no concern for archeol. resources - previous disturbance in area; evaluation of bridge will be necessary.

more visible from the house. He would like to review the site in the field. Linda feels that the proposed work adversely interrupts the landscape.

The Brown house adjacent to the Prescott's is owned by the local campground. It has been architecturally altered by siding and storm windows and the property use has changed - historic associations seem tenuous. However, it was recommended that an Intensive Survey form be prepared. Lynne Monroe will be asked to do the work.

It was suggested that design options be considered to minimize slope work and maximize vegetation retention.

3. Harts Location, BRF-032-1(20), P-4366 - The existing bridge received a rating of 13 by the bridge team in their evaluations of through plate girder structures. It is not considered eligible for the Register. SHPO has received the Forest Service packet with information about CCC sites, including the one in the project area. Other sites are of greater importance. It was agreed that a "no resources present" memo was appropriate. A "not eligible" letter for the bridge is needed.

4. Nelson-Stoddard, F-012-1(10), P-2445 - This project is being re-evaluated for environmental impacts. A garage which has been converted to a residence is now proposed to be taken. It has lost integrity, per SHPO, and is not eligible for the Register. Rehab of the bridge deck on the bridge which carries Old Route 9 over Granite Lake outlet will have no effect on the bridge, which appears to be potentially eligible. A letter to this regard is needed. The bridge, built in 1932 will be evaluated as one of a thematic grouping at a future date.

5. Rochester, MG-M-5389(005), C-2442-C - Copies of the signed letters of eligibility were provided to SHPO and FHWA.

6. Conway, 10617 - L. Wilson reported that her reviews of Lynne's work are on schedule. She also stated that the Abenaki Indian issue is likely to grow.

7. Portsmouth-Kittery, BHF-001-5(3), 10793 - The bridge has been determined eligible and the proposed rehabilitation will not have an effect, per SHPO. A letter to this regard was given to SHPO for S. Wallace's signature.

8. Walpole-Westminster, DE-0200(802), 10779 - Dan advised that he will be meeting with a prospective buyer of the bridge on Wednesday. A procurement plan will be requested of the buyer. Covenants and/or restrictions to preserve the bridge's historic integrity will need to be included in a contract to sell the bridge - SHPO will send examples to us. Bill O'Donnell will check with Region for examples, as well.

9. Deerfield, BRS-251(7), 10159 - G. Hume was reminded of the need for an archeological survey form for the Robinson mill site.

10. Derry, HES-305(2), 10292 - SHPO advised that they would be meeting with Parks on Thursday and would discuss project - 4(f) issue opposite Frost farm. SHPO was reminded of the need for a revised letter of determination of effect.

11. Bedford, HES-018-1(19), 10290 - Gary Hume will review the deed search info provided at a previous meeting.

Please mail the completed form and required material to:

RECEIVED
FEB 03 2012

New Hampshire Division of Historical Resources
State Historic Preservation Office
Attention: Review & Compliance
19 Pillsbury Street, Concord, NH 03301-3570

DHR Use Only	
R&C #	3538
Log In Date	__/__/__
Response Date	__/__/__
Sent Date	__/__/__

Request for Project Review by the New Hampshire Division of Historical Resources

☐ This Project is funded by the American Recovery and Reinvestment Act of 2009

☒ This is a new submittal ☐ This is additional information relating to DHR Review #:

GENERAL PROJECT INFORMATION

Project Title Sawyer River Bridge Replacement

Project Location Hart' Location Route 302

Tax Map & Lot # NA

NH State Plane - Feet Geographic Coordinates: Easting 1,067,578.317 Northing 577,901.132 Feet
WGS84 datum
(see RPR Manual and R&C FAQ's for help accessing this data)

Lead Federal Agency FHWA
(Agency providing funds, licenses, or permits)
Permit or Job Reference # A001(289)

State Agency and Contact (if applicable) NHDOT Bureau of Environment, Kevin Nyhan
Permit or Job Reference # 16396A

APPLICANT INFORMATION

Applicant Name NHDOT

Street Address 7 Hazen Drive Phone Number 271-1553

City Concord State NH Zip 03301 Email KNyhan@dot.state.nh.us

CONTACT PERSON TO RECEIVE RESPONSE

Name/Company Vicki Chase / McFarland Johnson

Street Address 53 Regional Drive Phone Number 603 225-2978

City Concord State NH Zip 03301 Email vchase@mjinc.com

Please refer to the Request for Project Review manual for direction on completing this form. Submit one copy of this project review form for each project for which review is requested. Include a self-addressed stamped envelope to expedite review response. Project submissions will not be accepted via facsimile or e-mail. This form

is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, the Division of Historical Resources (DHR) may require additional information to complete our review. All items and supporting documentation submitted with a review request, including photographs and publications, must be retained by the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process, please visit our website at: http://www.nh.gov/nhdhr/review or contact the R&C Specialist at 603.271.3558.

PROJECT BOUNDARIES AND DESCRIPTION

PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION

REQUIRED

☒ Attach the relevant portion of a 7.5' USGS Map (photocopied or computer-generated) ***indicating the defined project boundary.***

☒ Attach a detailed written description of the proposed project. Include: (1) a narrative description of the proposed project; (2) site plan; (3) photos and description of the proposed work if the project involves rehabilitation, demolition, additions, or alterations to existing buildings or structures; and (4) a photocopy of the relevant portion of a soils map (if accessible) for ground-disturbing projects.

Architecture

Are there any buildings or structures within the project area? ☒ Yes ☐ No

If yes, submit all of the following information:

Approximate age(s): **Railroad bridge – 1875 – Granite road bridge abutment - 1926**

☒ Photographs of ***each*** building located within the project area along with a photo key. Include streetscape images if applicable. (Digital photographs are accepted. All photographs must be clear, crisp and focused)

☒ DHR file review conducted on **November 12, 1987, December 10, 1987, February 8, 1988. Minutes attached.**

Please note that as part of the review process, the DHR may request an architectural survey or other additional information.

Archaeology

Does the proposed undertaking involve ground-disturbing activity? ☒ Yes ☐ No

If yes, submit all of the following information:

☒ Project specific map and/or preliminary site plan that fully describes the project boundaries and areas of proposed excavation.

☒ Description of current and previous land use and disturbances.

☒ Any available information concerning known or suspected archaeological resources within the project area.

Please note that as part of the review process, the DHR may request an archaeological survey or other additional information.

DHR COMMENT *This Space for Division of Historical Resources Use Only*

☐ No Potential to cause Effects ☐ Additional information is needed in order to complete our review

☐ No Adverse Effect ☑ No Historic Properties Affected ☐ Adverse Effect

Comments: 1926 abut will not be impacted when temporary bridge is removed.

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.

Authorized Signature: Michael Barnett DSHPO Date: 2-9-12

Request for Project Review Supplemental Narrative

US Route 302 Bridge over Sawyer River

State Project 16396A

The proposed project involves replacing the bridge that carries Route 302 over the Sawyer River in Hart's Location, New Hampshire. The existing bridge was heavily damaged during the rains from Hurricane Irene on August 30, 2011, and a temporary bridge has been in place since September 17, 2011. The temporary bridge is east of the damaged bridge and lies on the alignment that Route 302 used to follow, and uses, in part, the abutment from the bridge that had been there previously, which dates from 1926. A railroad bridge (built 1875) directly downstream of the bridge was also damaged during the hurricane. Approval for repairs to the railroad bridge are not part of this RPR, however, any potential impacts form the repair of the roadway bridge to the railroad bridge should be considered.

Prior to the emergency authorization, correspondence between NHDOT and NHDHR took place describing the work that was to be done (attached to this RPR).

Prior to when Route 302 was re-aligned in the early 1990's, the existing bridge and surrounding area were reviewed by DHR. Minutes from Cultural Resource Conference Reports are summarized below and are attached.

November 12, 1987
Harts Location, BRF-032-1(20), P-4366- Bill Grace described project and identified chimney remains and old foundations (probably early 20th century); it was suggested that R-O-W perform a deed (title) search; G. Hume will make a walkover of site near river ~~next week~~ to check for archeological potential; the existing bridge on US 302 was built in 1926, a historic evaluation will be necessary.

Foundations remaining

December 10, 1987
Harts Location, BRF-032-1(20), P-4366- G. Hume reviewed old chimney foundations, etc. in field appeared to be early tourist camp; Billie Hoornbeek of USFS confirmed site as a CCC camp; Gary & Billie agree that no new info can be gained above & beyond what is evident in field; site is on Forest Service land; G. Hume has no prehistoric arch. concerns; before memo is prepared, G. Hume wants to see results of Forest Service's report on other CCC camps on Forest Service land in N. H.; eligibility of bridge needs to be deferred until all through plate girders can be evaluated.

February 8, 1988
Harts Location, BRF-032-1(20), P-4366- The existing bridge received a rating of 13 by the bridge team in their evaluations of through plate girder structures. It is not considered eligible for the Register, SHPO has received the Forest Service packet with information about CCC sites, including the one in the project area. Other sites are of greater importance. It was agreed that a "no resources present" memo was appropriate. A "not eligible" letter for the bridge is needed.

Cultural resource Memorandum of Effect
(Municipally Managed Projects)

Project Name: **US Route 302 over Sawyer River** Date: **February ~~8~~ 9, 2012**

State No.: **16396A** Federal No. (as applicable) **A001(289)**

Pursuant to meetings on February ~~8~~ 9, 2012, and for the purpose of compliance with the regulations of National Historic Preservation Act and the Advisory Council on Historic Preservation's *procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources and, when applicable, the NH Division of the Federal Highway Administration or the US Army Corps of Engineers have coordinated the identification and evaluation of cultural resources relative to (project description):

Harts Location 16396A US Route 302 over Sawyer River Bridge Replacement and Roadway Reconstruction Project involves the replacement of the existing Bridge (Br. No. #235/059) in the Town of Harts Location, with associated reconstruction of US Route 302 that was damaged by Hurricane Irene in August 2011. The road and bridge lie within the White Mountain National Forest (WMNF), and the entire watershed of the Sawyer River is within the WMNF. The US Route 302 reconstruction will begin approximately 300 feet north of the existing bridge and extend south to a point approximately 300 feet south of the existing bridge.

The Project includes minor vertical profile changes based on the new superstructure depth proposed by the Design Build team, drainage improvements, and waterway improvements. During construction, two lanes of traffic will be maintained on US Route 302 over the detoured alignment using the newly installed temporary bridge.

Route 302 was re-aligned in the early 1990's, and the existing bridge and surrounding area were reviewed by DHR. The project was found to have no impacts to historical or archaeological resources.

Based on a review of the project, as presented on this date, it has been determined that:

☒ **No Historic or Archaeological Properties will be Affected** The N2W abutment will be left in place when the temp bridge is removed.

☐ **There will be No Adverse Effect on Historic or Archaeological Properties**
Describe any outstanding commitments:_____

☐ **There will be an Adverse Effect on Historic or Archaeological Properties or Resources**
describe the effect, measures to minimize harm and proposed mitigation_____
_____(attach pages as Necessary).

There Will Be: ☒ No 4(f); ☐ Programmatic 4(f); ☐ Full 4 (f); ☐ A finding of de minimis impact as stated below:

In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with Section 6009(a) of the 2005 SAFETEA-LU transportation program reauthorization, FHWA intends to, and by signature below, does make a finding of *de minimis* impact. NHDHR's signature below represents concurrence with both the no adverse effect determination and the de minimis 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, we will continue to consult, as appropriate, as this project proceeds.

NH Division of Historical Resources

Federal Highway Administration

Project Manager

US Army Corps of Engineers

Cc: FHWA, NHDHR, FHWA, ACOE (⇐ as applicable ⇑)

S:\CULTURAL\MEMOS\MMChecklistMemo.doc

BIOLOGICAL EVALUATION
OF THE PROPOSED

REPLACEMENT OF THE ROUTE 302 BRIDGE OVER SAWYER RIVER

In the
TOWN OF HART'S LOCATION
CARROLL COUNTY,
NEW HAMPSHIRE

ON
FEDERALLY ENDANGERED, THREATENED, AND PROPOSED SPECIES
AND
REGIONAL FORESTER SENSITIVE SPECIES

USDA Forest Service
Saco Ranger District
White Mountain National Forest
33 Kancamagus Highway
Conway, New Hampshire, 03818

Prepared By

/s/Kathy Starke Date 3/6/2012
Kathy Starke, Saco District Biologist, White Mountain National Forest

INTRODUCTION

This Biological Evaluation (BE) is prepared in accordance with direction provided in the United States Department of Agriculture Forest Service (USFS) Manual 2672.42 and Section 7 of the Endangered Species Act (ESA) and amendments. It addresses potential effects of the proposed permanent replacement of the bridge over Sawyer River along NH State Highway Route 302 on Federally threatened and endangered species (TES) and Regional Forester Sensitive Species (RFSS) that may occur within the project area. This BE also considers effects disclosed in the Biological Evaluation for the WMNF Final Environmental Impact Statement (WMNF FEIS) (USDA Forest Service 2005) when determining site-specific effects of the Proposed Action and alternatives. Federally endangered and threatened species are those determined for eligibility based on guidelines listed by the United States Department of Interior Fish and Wildlife Service (USFWS) under Section 4 of the Endangered Species Act (ESA).

Species included on the Regional Forester Sensitive Species list must occur on Forest Service land or within the proclamation boundary of the Forest and meet at least one of the following criteria: 1) are a candidate for federal listing under ESA, 2) has been delisted under ESA within the last five years, 3) are globally (G) or nationally (N) ranked as a 1, 2, or 3 from the Association of Biodiversity Information, or 4) are otherwise considered “at risk” on the Forest, including rationale documented in a Risk Evaluation. A Species Viability Evaluation was conducted for all fauna and flora with potential viability concern on the WMNF for Forest Plan Revision. Local experts on these species were involved in the process (USDA Forest Service 2005 (Chapter 3, pages 209-300, Appendix F)).

The Regional Forester’s Sensitive Species list was updated in December 2011 for Region 9 that includes the White Mountain National Forest (USDA Forest Service 2011). This BE incorporates this updated list.

PURPOSE AND NEED

The purpose for this project is to replace a state highway bridge that was damaged from the effects of Tropical Storm Irene in late August of 2011. A temporary bridge was constructed in September of 2011 to provide travel along this state highway. This project would replace the temporary bridge with a permanent one.

AFFECTED ENVIRONMENT

The Project area is the site where Route 302 crosses Sawyer River. A more detailed description of the area measurements can be found in the Department of Transportation documents. This biological evaluation focuses on the area described by DOT required for construction of the

permanent bridge, the previously impacted area from the temporary bridge and the area of Sawyer River contained within this description.

CONSULTATION HISTORY

Information utilized in this Biological Evaluation regarding TES species and their habitat requirements is considered the best available science currently available. During Forest Plan revision a thorough review of all species of concern was completed. This is relevant because it is an in-depth, specialist-reviewed analysis of all species that had any concern of viability on the White Mountain National Forest. (USDA Forest Service 2005 SVE process documents).

The WMNF consulted with USDI Fish and Wildlife Service (USFWS) during Forest Plan revision. The USFWS provided a response to the Biological Assessment on Alternative 2 of the proposed Plan (USDI FWS 2005). Communication between the WMNF and USFWS is current and ongoing.

United States Fish and Wildlife Service reviewed the federally listed species determined to be on the WMNF (USDI FWS 2012). To date there is no designated critical habitat for any federally listed species on the WMNF. On June 29, 2011 the USFWS agreed to review the Northern Long-eared bat (Myotis septentrionalis) and the Eastern small-footed myotis (Myotis leibii) for listing (Federal Register 6/29/2011) however results were not available to include in this analysis.

Summary of Available Information

Conservation assessments are being conducted to provide current information on the status and distribution of RFSS species. Completed conservation assessments for RFSS species on the White Mountain National Forest are posted on the Internet at www.fs.fed.us/r9/wildlife/tes/ca-overview/index.htm.

Additional range and habitat information for vertebrate species is taken from DeGraaf and Yamasaki 2001; DeGraaf et.al. 2005; and DeGraaf et.al 2006. Federal Recovery Plans (USFWS 1982, 1983, 1991, 1991, 1992, 1992, 1996) also are reviewed to evaluate habitat preference of federally listed species. Surveys and searches have been conducted for TES species such as northern bog lemming, Canada lynx, and eastern small-footed myotis (USDA Forest Service 1995-2009 unpublished data). Another source of information used to evaluate rare plant species and potential habitats in the Project Area is a landscape analysis (a pre-field prediction tool that used topographic maps, soil maps, geological information, and known information on rare plants and communities (NHNHB 2012), the New England Plant Conservation Program (http://www.newfs.org/nepcop.htm) and field inventories conducted while being assessed by the WMNF botanist (USDA Forest Service. 2011).

The WMNF maintains an excellent working relationship with many organizations conducting research and surveys in the New England area. New information is reviewed as it becomes available.

DETERMINATION

I have reviewed the Federally listed species for the WMNF (Table 1) in regards to the Rt 302 special use project proposal to place a permanent bridge across the Sawyer River to facilitate traffic on Rt 302. I have conferred with Chris Mattrick, Forest botanist. I have determined there are no federally listed species or suitable habitat within the project area. Therefore there would be no direct, indirect or cumulative effects to federal listed species.

I have reviewed the recently updated Regional Forester's Sensitive Species (RFSS) for the WMNF for fauna and Chris Mattrick has reviewed the list for plants as well as visited the site and discussed operation with the DOT work crew. No RFSS flora or fauna currently exist within the project area. Therefore, there would be no direct, indirect or cumulative effects from the project proposal to RFSS plants or animals.

Bats have been known to roost in bridges, especially the bridge joints during the summer months as the bridge can create warm temperatures bats prefer. This utilization would occur from mid May to mid September as other times of the year bats would be at their winter hibernacula or out of the area. Bats that roost in bridge joints do not appear to be disturbed by traffic utilizing the bridge, however they could be disturbed or harmed should the bridge be moved or removed while they are roosting.

Prior to removal of the remaining section of the damaged bridge and the temporary bridge, an inspection shall occur to determine if any bat may be roosting there. Any roosting bat shall be safely removed from the bridge prior to dismantling. This action would assure there would be no direct, indirect or cumulative effects to any of the listed bats.

Migratory birds of concern were reviewed and using the best available science, I have determined this project would have no direct, indirect or cumulative effect to them or their habitat.

TABLE 1.

Incorporates information for NH Highway Route 302 permanent bridge replacement at Sawyer River in the town of Harts Location, Carroll County, New Hampshire in regards to pre-field and field review of federally endangered, threatened, and proposed species and Regional Forester Sensitive Species of the White Mountain National Forest.

Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
FEDERALLY THREATENED AND ENDANGERED SPECIES					
MAMMALS					
****Eastern Gray Wolf** *Canus lupus*	Large expanses of forested habitat, with adequate prey base.	NO	NO	NO	The USFWS considers gray wolf extirpated from the WMNF (USFWS 2008). The project area is relatively small and the project is to replace a previously existing bridge.
****Eastern Cougar** *Felis concolor cougar*	Large expanses of forested habitat, which has adequate populations of deer.	NO	NO	NO	The USFWS considers eastern cougar extirpated from the WMNF (USFWS 2008). The project area is relatively small and the project is to replace a previously existing bridge.
Canada lynx *Felis lynx canadensis*	Favor coniferous or mixedwood forests frequented by snowshoe hare. Travel corridors include ridges, saddles, and riparian corridors.	NO	NO	NO	Canada lynx have been documented in the northern-most section of NH off the WMNF. (NHFG 2006, NHFG 2012). There has been no evidence of lynx occurring within the project area, therefore no direct effects would be anticipated in any alternative. The project area is relatively small and the project is to replace a previously existing bridge. Communication between WMNF and USFWS is current and ongoing.
Indiana Bat *Myotis sodalis*	Winter hibernacula include caves and old mines. Roost under exfoliating bark or in cavities of dead or partially dead trees in partially open upland and riparian forests at lower elevations. Forage in the foliage of upper canopy trees in forests and along rivers, lakes and open areas. Recent research indicates that most Indiana bats that hibernate in northern New England spend the non-hibernation season in the Champlain and Connecticut River Valleys (USFS 2005c).	NO	NO	NO	The project area is relatively small and currently contains no large trees. Indiana bat is no longer included on the USFWS list of federally-listed and/or proposed endangered or threatened species on the WMNF (USFWS letter, 2012). Recent research in northern New England indicates most of the WMNF is unsuitable for Indiana bat due to high canopy closure of forested habitat, cooler temperatures and steep terrain between and distance from known winter hibernacula. There are currently no known hibernacula on the WMNF. Female bats emerging from hibernacula in New York traveled less than 40 miles to summer habitat (USDA Forest Service 2005a, Appendix G, pages 35-44). Bats would have to cross steep terrain and travel approximately 100 miles to reach the project area. Route 302, Sawyer River and Saco River may provide travel corridors or areas to forage over however this would occur during non-project implementation hours.
PLANTS					
Small-whorled Pogonia *Isotria medeoloides*	Open woods with an oak component. Less than 1500' elevation. Enriched hardpan soils or presence of ledge on south-facing slopes.	NO	NO	NO	The project area is within the known range of this species. No suitable habitat within the project area.

Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
REGIONAL FORESTER'S SENSITIVE SPECIES					
MAMMALS					
Eastern Small-footed Bat *Myotis leibii*	Winter hibernacula include caves, mines, and old buildings. Roost sites include rocky ridgetops and outcrops, cliff faces, buildings, and bridges.	NO	YES	NO	Numerous rocks on stream banks of Sawyer River and the Saco River provide summer roosting habitat. Highway and rivers provide travel corridors and foraging areas. Expansion joints in new bridge would provide new roosting sites.
Little Brown Bat *Myotis lucifugus*	Winter hibernacula include caves and mines. Summer roost sites often in outbuildings or other human dwellings. In forested situations, the majority roost in hardwood trees in cavities or under loose bark.	YES	YES (Foraging only)	NO	Has been the most common bat species until onset of WNS. Would be roosting during daytime implementation and therefore not within the project area. Would forage at night over highway and rivers.
Northern Myotis *Myotis septentrionalis*	Winter hibernacula include caves and mines. Summer roost sites include tree cavities and under loose bark; may also take shelter in outbuildings and human dwellings. In forested situations, the majority roost in hardwood trees.	YES	NO	NO	Would be roosting during daytime implementation and therefore not within the project area. Forages in forested areas.
Tri-colored Bat *Perimyotis subflavus*	Winter hibernacula include caves, mines, and rock crevices. Summer roosts are primarily in leaf clusters of hardwood trees.	NO	YES (Foraging only	NO	Would be roosting in trees during daytime implementation and therefore not within the project area. Would forage at night over highway and rivers.
Northern Bog Lemming *Synaptomys borealis sphagnicola*	Prefers sedge meadows and bogs. Other habitats include riparian areas, openings, krummholz, and softwoods. Requires moist to wet loose soils. Prefers dense herbaceous or mossy understory. Uses burrows.	NO	NO	NO	Project area already compacted from previous bridge and temporary bridge. No suitable habitat present.
BIRDS					
Bicknell's Thrush *Catharus bicknelli*	Spruce, fir, birch, and krummholz communities of high elevations (>3000').	NO	NO	NO	Project Area is less than 3000'. No suitable habitat.
American Peregrine Falcon *Falco peregrinus anatum*	Requires cliff faces for nesting. Feeds on birds. Forages in open areas.	NO	NO	NO	No cliffs within the project area. Project area too small.
Common Loon *Gavia immer*	Lakes and ponds at least ¼ mile long. Nests on water's edge. Require adequate prey base of small fish, amphibians to feed young.	NO	NO	NO	No lake or pond within the project area.
Osprey *Pandion haliaetus*	Nests in dead snags, living trees, cliffs, utility poles, wooden platforms on poles, etc. usually near or above rivers, lakes, ponds, and other waterbodies.	NO	NO	NO	May feed along the Saco River, but no suitable nest tree within project area.
Pied-billed Grebe *Podilymbus podiceps*	Waterbodies usually ≥ 12 acres with both open water and emergent vegetation.	NO	NO	NO	No lake or pond within the project area.
REPTILES					
Wood Turtle *Clemmys insculpta*	Riparian areas of slower moving streams. Wooded or heavily vegetated stream banks as well as fields and meadows used for foraging. Hibernates in stream bottoms or muddy banks. Sandy and gravelly areas used for nesting sites.	NO	NO	NO	Sawyer River and Saco River too rocky. No suitable habitat.

Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
INSECTS					
Brown's Ameletus Mayfly *Ameletus browni*	Larvae prefer erosional areas in cold, fast-moving headwater streams that usually are well-oxygenated, of relatively high pH, with canopy cover and rocks or boulders present. Adults typically remain along streambanks near emergence sites.	NO	NO	NO	Project area is not in headwater of Sawyer River.
Third Ameletus Mayfly *Ameletus tertius*	Larvae are found in small and large streams in secondary depositional areas and on submerged grasses and detritus along margins of riffles and transitional areas. Adults typically remain along streambanks near emergence site. Streams are usually well-oxygenated, of relatively high pH, with canopy cover and rocks or eroding banks present.	NO	NO	NO	Project area has no submerged grasses or canopy cover.
White Mountain Fritillary *Bolaria chariclea montina*	Alpine. Inhabits lush, moist areas near sheltered spots, wet springs, and rocky outcrops above 4500'. Alpine goldenrod common food plant Larval host unknown but may be blueberry or willow.	NO	NO	NO	No alpine habitat within project area.
Boulder Beach Tiger Beetle *Cicindela ancocisconensis*	Open sand or mix of sand and cobble along permanent streams of mid-sized rivers; feed and live on the sandy areas exposed by receding rivers.	NO	NO	NO	No suitable sand or gravel bar within project area. Beetle feeds on sand bars, but breeds and lays eggs on land. (USFS 2005)
White Mountain Butterfly *Oenesis melissa semidea*	Alpine. Prefers sedge meadows. Adult host plant unknown. Larva feed on Bigelow's Sedge.	NO	NO	NO	No alpine habitat within project area.
Warpaint Emerald *Somatochlora incurvata*	Breeds in bogs, fens, and similar peatlands, usually in sphagnum moss. The only occurrence documented on the WMNF came from the Church Pond area in 2001 (SVE 8/2006).	NO	NO	NO	No bog, fen or peatland within project area.
PLANTS					
Missouri Rock-cress *Arabis missouriensis*	In the WMNF, probably restricted to semi-open conditions of richer sites. Typically south or west-facing slopes below 1500'. Associated species include red oak, ash, basswood, sugar maple.	NO	NO	NO	Project area not enriched. No suitable habitat.
Alpine Bearberry *Arctostaphylos alpina*	Typically on the exposed end of the dry/mesic heath meadow system of alpine communities. *Arctostaphylos alpina* is usually found in small, isolated populations on ridgelines of the Presidentials	NO	NO	NO	No alpine or other suitable habitat within project area.
Dragon's Mouth *Arethusa bulbosa*	Most often found in open, wet sphagnum bogs, in full sunlight. Commonly associated with such minerotrophs as alder, sweet gale (*Myrica gale*), several sedges (*Carex* sp.), bog rosemary and leather leaf (*Chamaedaphne calyculata*).	NO	NO	NO	No appropriate bog habitat within the project area
Arnica *Arnica lanceolata*	Alpine ravines, damp banks and rock ledges. At low elevations on rocky river banks, gravel bars, beaches, and alluvial flats of rivers and streams at low elevations.	NO	NO	NO	Survey did not reveal presence of this species within the project area.

Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
Robbins' milkvetch *Astragalus robbinsii var. minor*	In northern New England, this species is found on calcareous cliffs and ledges	NO	NO	NO	No suitable habitat within project area.
Dwarf White Birch *Betula minor*	Bogs and wet, rocky alpine slopes, summits and gullies. Acidic rocky barrens and peaks.	NO	NO	NO	No alpine or other suitable habitat within project area.
Alpine Bitter Cress *Cardamine bellidifolia*	Cold ravines or on wet mossy rocks in the alpine area.	NO	NO	NO	No alpine or other suitable habitat within project area.
Cutleaf Toothwort *Cardamine concatenata*	Rich woods species. In Maine, typical habitat is described as rich woods, wooded bottoms and calcareous rocky banks. NHNHI (2000) indicates this species uses nutrient rich mesic forest, talus slopes, and cliffs/ledges. Often growing in association with other spring ephemerals such as spring beauty (*Claytonia casoliuiana*) and trout lily (*Erythronium americanum*).	NO	NO	NO	No rich woods in the project area.
Bailey's Sedge *Carex baileyi*	Wetland species of fens, swampy woods and meadows. Ditches and disturbed openings.	NO	YES	NO	Ditches do exist within the project area however recent activity has compacted the soils. Project may create suitable habitat after completion.
Head-like Sedge *Carex capitata ssp. arctogena*	Wet, acidic, rocky or gravely soil in the alpine. May also occur in similar dry habitats.	NO	NO	NO	No alpine or other suitable habitat within project area.
Piled-up Sedge *Carex cumulata*	Open ledges, dry sandy soils; open oak forests or hardwood talus; clearings; burned oak-pine rocky summit woodlands.	NO	NO	NO	No suitable habitat within the project area
Scirpus-like Sedge *Carex scirpoidea*	Strongly associated with circumneutral or calcareous rocky summits, outcrops, and cliffs. In NH, only known from open ledges and subalpine habitats.	NO	NO	NO	No ledges or subalpine habitat within the project area
Wiegand's Sedge *Carex wiegandii*	Boggy or peaty soils, boreal bogs; acidic soils of drier, shrubby, sometimes disturbed, margins of acidic sphagnum bogs or poor fens.	NO	NO	NO	No boggy or peaty soils within the project area.
Fogg's Goosefoot *Chenopodium foggii*	At cliff bases, on rocky slopes and outcrops, and in sparsely wooded areas; apparently associated with circumneutral habitats	NO	NO	NO	No cliffs or circumneutral habitat within the project area.
Autumn Coralroot *Corallorhiza odontorhiza*	Can be found in a variety of deciduous and mixed forest habitats. Requires mycorrhizal host, but details unknown.	NO	NO	NO	No deciduous forest within the project area.
Greater Yellow Lady's-slipper *Cypripedium parviflorum var. pubescens*	Rich, mesic forests. In NH, most likely to occur in dry to moist, usually rich, forests and woodlands, along the edges of spring run off streams, or in circumneutral/calcareous forests and woodlands including rich mesic forests, seepage forests, and seepage swamps. Associated species include *Acer saccharum, Fraxinus Americana, Carex lacustris, Solidago uliginosa, Geum rivale, Adiantium pedatum, Osmunda cinnamomea,* and *Botrychium virginianum*.	NO	NO	NO	No rich mesic forest, or circumneutral woodlands within the project area.

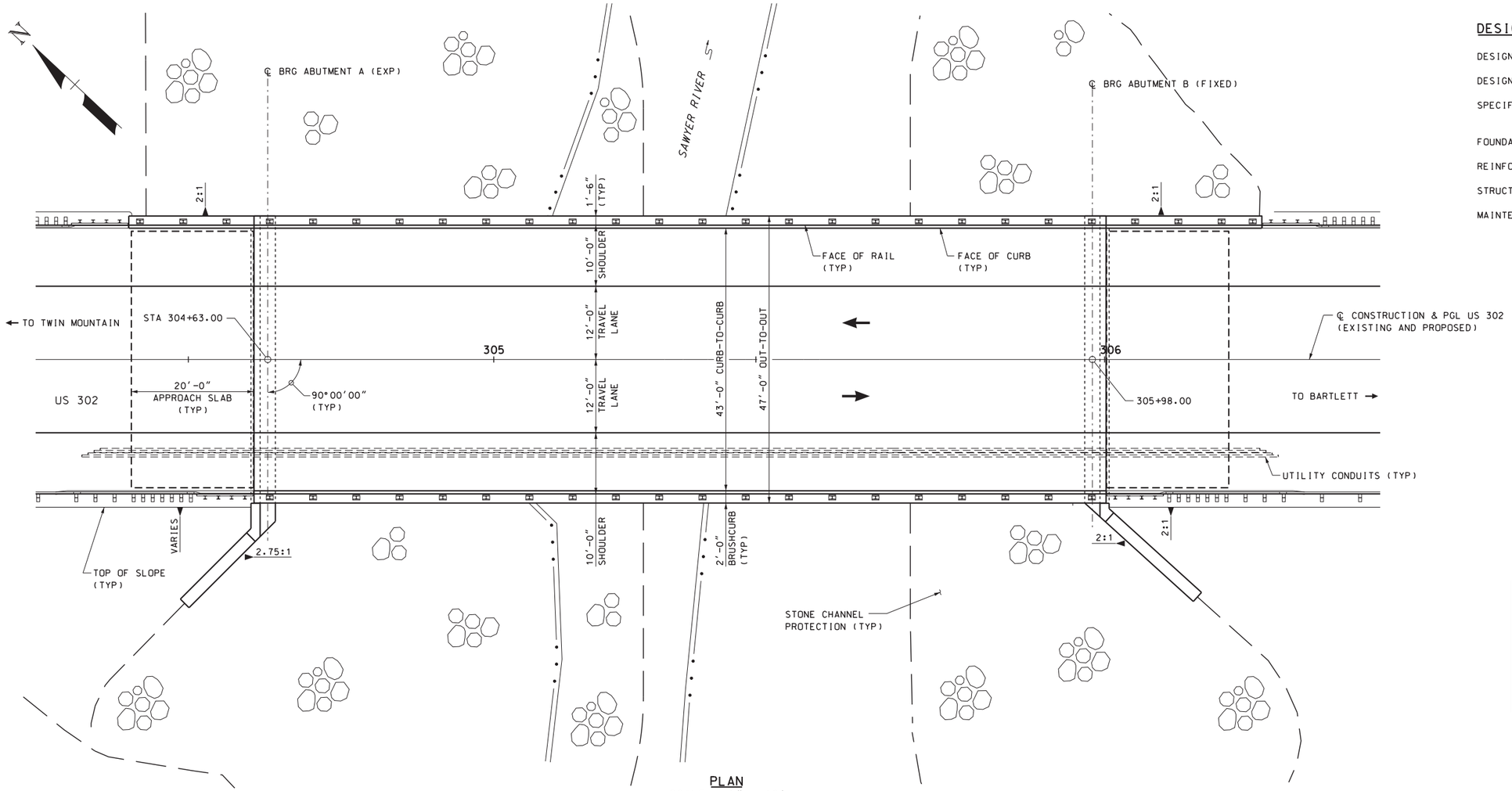
Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
Fragrant Fern *Dryopteris fragrans var. remotiuscula*	Prefers cool, dry, sometimes shaded banks or cliffs, under overhangs which are usually in boreal communities. Associated species include *Dryopteris intermedia*, *Woodsia ilvensis*, *Potentilla fruiticosa*, *Cystopteris fragilis*, *Cryptogramma stelleri*, *Equisetum variegatum*, and *Arabis laevigata*.	NO	NO	NO	No cliffs or boreal communities within the project area.
Goldie's Woodfern *Dryopteris goldiana*	Rich, damp woods of calcareous soils. Rich mesic forests.	NO	NO	NO	No rich, damp calcareous soils or forests within the project area.
Oakes' Eyebright *Euphrasia oakesii*	Alpine. Exposed gravelly slopes or ledges or open ledgy areas.	NO	NO	NO	No alpine or other suitable habitat within project area.
Proliferous Red Fescue *Festuca rubra ssp. rubra*	Alpine, in cool, wet ravines, and along alpine brooks.	NO	NO	NO	No alpine or other suitable habitat within project area.
Boreal Bedstraw *Galium kamtschaticum*	Prefers somewhat rich seep habitats with non-channelized flowing surface water; found in cool, wet hardwood, mixed, or conifer woods, swamps, and streamsides.	NO	NO	NO	No rich, forested habitat or swamp within the project area.
Northern Comandra *Geocaulon lividum*	Peat bogs at high altitudes. Damp humus in spruce-fir woods at med to high elevation (fir waves). This species has been recorded at 2200 to 2650 feet on the WMNF.	NO	NO	NO	No peat bogs or suitable spruce fir forest within the project area
Mountain Avens *Geum peckii*	Moist alpine areas. Snowbank, wet meadow, streamside communities in the alpine. Occurs rarely at low elevation sites, in rocky streams.	NO	NO	NO	No alpine or other suitable habitat within project area.
Moss Bell-heather *Harrimanella hypnoides*	Snowbank communities, wet seeps, and crevices in alpine habitats.	NO	NO	NO	No alpine or other suitable habitat within project area.
Butternut *Juglans cinerea*	Rich, moist, alluvial soils and dry, rocky hillsides with limestone. Old farmsteads.	NO	NO	NO	No suitable alluvial soils or limestone soils within the project area. No old farmstead.
Auricled Twayblade *Listera auriculata*	Temporarily flooded and seasonally ice-scoured riverbanks with calcareous soils. Stream banks, mossy woods, alder thickets, boggy alluvial woods, cedar swamps, gravel riverbank, and lake and pond shores	NO	NO	NO	No calcareous soils or mossy woods. Project area is without canopy cover.
Broad-leaved Twayblade *Listera convallarioides*	Wet, cold woods, usually in deep shade; peaty glades, spruce/fir woods; thickets, nutrient poor mossy-forested seeps.	NO	NO	NO	No suitable riverine or wetland habitats.
Heartleaf Twayblade *Listera cordata*	Wet cold, woods and sphagnum bogs; sub-alpine scrub; bases of wet, seepy ledges, outcrops/cliffs, spruce/fir woods on lime.	NO	NO	NO	Project area generally too low in elevation this species. No wet cold spruce/fir woods or suitable sphagnum bogs in project area.
Prairie Goldenrod *Oligoneuron album*	Occurs primarily on dry, calcareous cliffs and ledges. May also occur in open fields and roadsides. All known NH occurrences are on calcareous soil or bedrock.	NO	NO	NO	No suitable open cliffs or ledges of the bedrock type known to support this species. Only known occurrences in NH are located in Lyme, NH.
Alpine Cudweed *Omalotheca supina*	Gravelly slopes and ravines at high altitudes; exposed alpine areas and snowbank communities.	NO	NO	NO	No alpine or other suitable habitat within project area.

Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
Northern Adder's Tongue *Ophioglossum pusillum*	Variety of early-successional, seasonally moist to wet habitats, including open fens, bogs, marsh edges, pastures, old fields, grassy shores, wet thickets, cedar and hardwood swamps, floodplain woods, wet swales, damp sand, and roadside ditches. WMNF occurrence is in maintained wildlife opening.	NO	NO	NO	Project area does not contain wet habitats such as fen, marsh or bog. Project may create suitable habitat once completed if ditches are damp.
Mountain Sweet-Cicely *Osmorhiza berteroi*	Rich, moist, deciduous, shaded woods. Recently found on Bog Dam road in ditch.	NO	NO	NO	No rich, moist shaded forest within the project area
Mountain Sorrel *Oxyria digyna*	Typically occurs in snowbank communities and on rocky slopes and ledges of headwalls. May occur near alpine streamsides. Above 3500' in northern New England.	NO	NO	NO	No alpine or other suitable habitat within project area.
American Ginseng *Panax quinquefolius*	Moist soils. Often cool, rich, rocky, deciduous, woods with shrubby underbrush. Semi-mesic forests w/ rocky, thick humus of colluvial soils.	NO	NO	NO	No rich, moist soil or deciduous woods within project area.
White Mountain Silverling *Paronychia argyrocoma*	Mid-elevation, bare rocky summits, ledges, and cliffs; sand/gravel barrens of Saco River between Bartlett and Fryeberg.	NO	NO	NO	No bare rocky summits, ledges within the project area. Survey did not reveal presence.
Sweet Colt's-foot *Petasites frigidus var palmatus*	Swampy woods, meadows with calcareous soils. White cedar swamps.	NO	NO	NO	No cedar swamps or suitably calcareous swampy woods.
Canada Mountain Ricegrass *Piptatherum canadense*	Dry, rocky openings just below treeline and into krummholz zone; sandy deciduous woodlands; early successional plant communities; along sandy roadsides, and on open, sparsely brushy ground.	NO	NO	NO	Project area not in krummholz; roadside has been compacted from recent construction after Tropical Storm Irene. Roadsides may become suitable habitat once project completed.
Wavy Bluegrass *Poa laxa ssp. fernaldiana*	Typically found on high, wet cliffs, especially on the little underhangs of cliffs, also in dry/mesic heath meadow system of alpine communities in NH, which includes an array of *Carex* meadows, strong heaths, *Diapensia*, fell fields, and barren rock.	NO	NO	NO	No alpine or other suitable habitat within project area.
Alpine Meadow Grass *Poa pratensis ssp. alpigena*	In NH, uses nutrient poor soils in alpine/subalpine dry-mesic heath and meadow communities.	NO	NO	NO	No alpine or other suitable habitat within project area.
Douglas Knotweed *Polygonum douglasii*	Prefers exposed rocky slopes and hillside ledges in well-drained soil where little other vegetation grows. Can also grow in nutrient-enriched hardwood forests if the canopy is open enough; often associated with rocks even in forest.	NO	YES	NO	The plant was not observed during surveys despite being looked for by the surveyor.
Viviparous Knotweed *Polygonum viviparum*	Snowbank communities, wet mossy rocks and seeps, and near streams in alpine and subalpine areas.	NO	NO	NO	No alpine or other suitable habitat within project area.
Robbin's Cinquefoil *Potentilla robbinsiana*	Alpine zone in Presidential Range of WMNF.	NO	NO	NO	No alpine or other suitable habitat within project area.

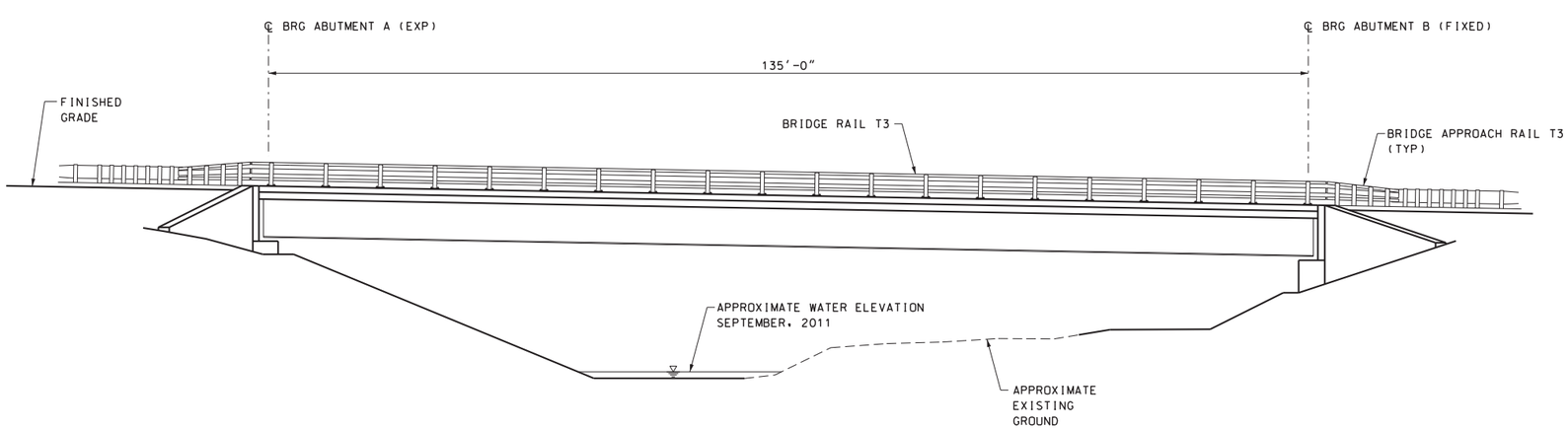
Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
Boott's Rattlesnake Root *Prenanthes boottii*	Variety of alpine habitats, moist tundra, steep cirque ledges and crests, and disturbed alpine sites such as trailsides and hut areas	NO	NO	NO	No alpine or other suitable habitat within project area.
Pink Wintergreen *Pyrola asarifolia*	Rich, moist woods and bogs of calcareous soils. Moist alluvial soil of lower river terrace forests. Spruce/fir forests. Prefers areas around wetlands/	NO	NO	NO	No rich, moist woods within the project area.
Silverleaf Willow *Salix argyrocarpa*	Moist soils in alpine or subalpine streamside and ravine.	NO	NO	NO	No alpine or subalpine habitat within project area.
Dwarf Willow *Salix herbacea*	In NH, typically occurs in cool, wet ravines, snowbank communities, and along alpine brooks. Grassy, sandy, or rocky places in alpine areas; often on thinner soils than other snowbank/wet ravine species.	NO	NO	NO	No alpine or other suitable habitat within project area.
Three-leaved Black Snake Root *Sanicula trifoliata*	Limy deciduous woods below 1500'. Most occurrences on steep slopes. Appears associated w/ dense, lush ground cover and relatively closed canopy but has been found near clearcuts and cliffs which may indicate it can take advantage of sunny conditions.	NO	NO	NO	No limy deciduous woods or dense ground cover within the project area.
White Mountain Saxifrage *Saxifraga paniculata*	Typically alpine areas with exposed calcareous gravel and rocks. Can grow below alpine on limy, seepy, open cliffs.	NO	NO	NO	No alpine habitat or limy, seepy open cliffs within project area.
Alpine Brook Saxifrage *Saxifraga rivularis*	Alpine ravines, wet and mossy areas, wet cliffs, and some dry-mesic heath alpine/subalpine communities. May benefit from reduced competition associated with moderate disturbance. May be a nitrophile.	NO	NO	NO	No alpine or other suitable habitat within project area.
Arizona Cinquefoil *Sibbaldia procumbens*	Snowbank/wet meadow/streamside alpine communities; only occurrence is at bottom of a snowfield.	NO	NO	NO	No alpine or other suitable habitat within project area.
Moss Campion *Silene acaulis var exscapa*	Moist, alpine meadows. Gravelly barrens.	NO	NO	NO	No alpine or other suitable habitat within project area.
Anderson's sphagnum *Sphagnum andersonianum*	Low hummocks in very poor ericaceous fens. Largely high elevation.	NO	NO	NO	No suitable wetland habitats in the project area. Not high elevation
Angerman's Sphagnum *Sphagnum angermanicum*	Poor fens, including at edges of ponds. Largely high elevation.	NO	NO	NO	No suitable wetland habitats in the project area.
Sphagnum *Sphagnum flavicomans*	Medium to tall hummocks in bogs and poor fens. An indicator species for the *Sphagnum rubellum/Vaccinium oxycoccus* dwarf heath moss lawn in New Hampshire	NO	NO	NO	No suitable wetland habitats in the project area.
Nodding Pogonia *Triphora trianthophora*	Mid-elevation beech hardwoods usually on south-facing slopes. Deep leaf litter with humus.	NO	NO	NO	No beech hardwood forest within the project area.

Species	Habitat Requirements	Sightings (Present or Historical)	Suitable Habitat within the Project Area?	Could Project Impact Species or Habitat?	Rationale
Boreal Blueberry *Vaccinium boreale*	Alpine bogs, meadows of Presidential and Franconia Mts. Exposed gravelly or rocky sites.	NO	NO	NO	No alpine or other suitable habitat within project area.
Mountain Hairgrass *Vahlodea atropurpurea*	In northern New England, is limited to the alpine/subalpine zone, especially herbaceous snowbanks communities.	NO	NO	NO	No alpine or other suitable habitat within project area.

** Considered Extirpated from the White Mountain National Forest per US Fish and Wildlife Service.



PLAN
SCALE : 1" = 10'



ELEVATION
SCALE : 1" = 10'

DESIGN LOADS, MATERIALS AND SPECIFICATIONS

DESIGN LOADING:	HL-93
DESIGN METHOD:	LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD)
SPECIFICATIONS:	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2010 NHDOT 2010 STANDARD SPECIFICATIONS AS AMENDED
FOUNDATION DATA:	CANTILEVER ABUTMENTS ON SPREAD FOOTINGS
REINFORCING STEEL:	AASHTO M31 (ASTM A615) GRADE 60, EPOXY COATED
STRUCTURAL STEEL:	AASHTO M270, GRADE 50W (ASTM A709, GRADE 50W)
MAINTENANCE OF TRAFFIC:	TRAFFIC CURRENTLY DETOURED ON TO TEMPORARY BRIDGE.

INDEX OF BRIDGE SHEETS

BRIDGE SHEET NO.	DESCRIPTION
1	GENERAL PLAN AND ELEVATION
2	SITE PLAN AND PROFILE
3	TYPICAL BRIDGE SECTION

CONCEPTUAL PLANS
NOT FOR CONSTRUCTION

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

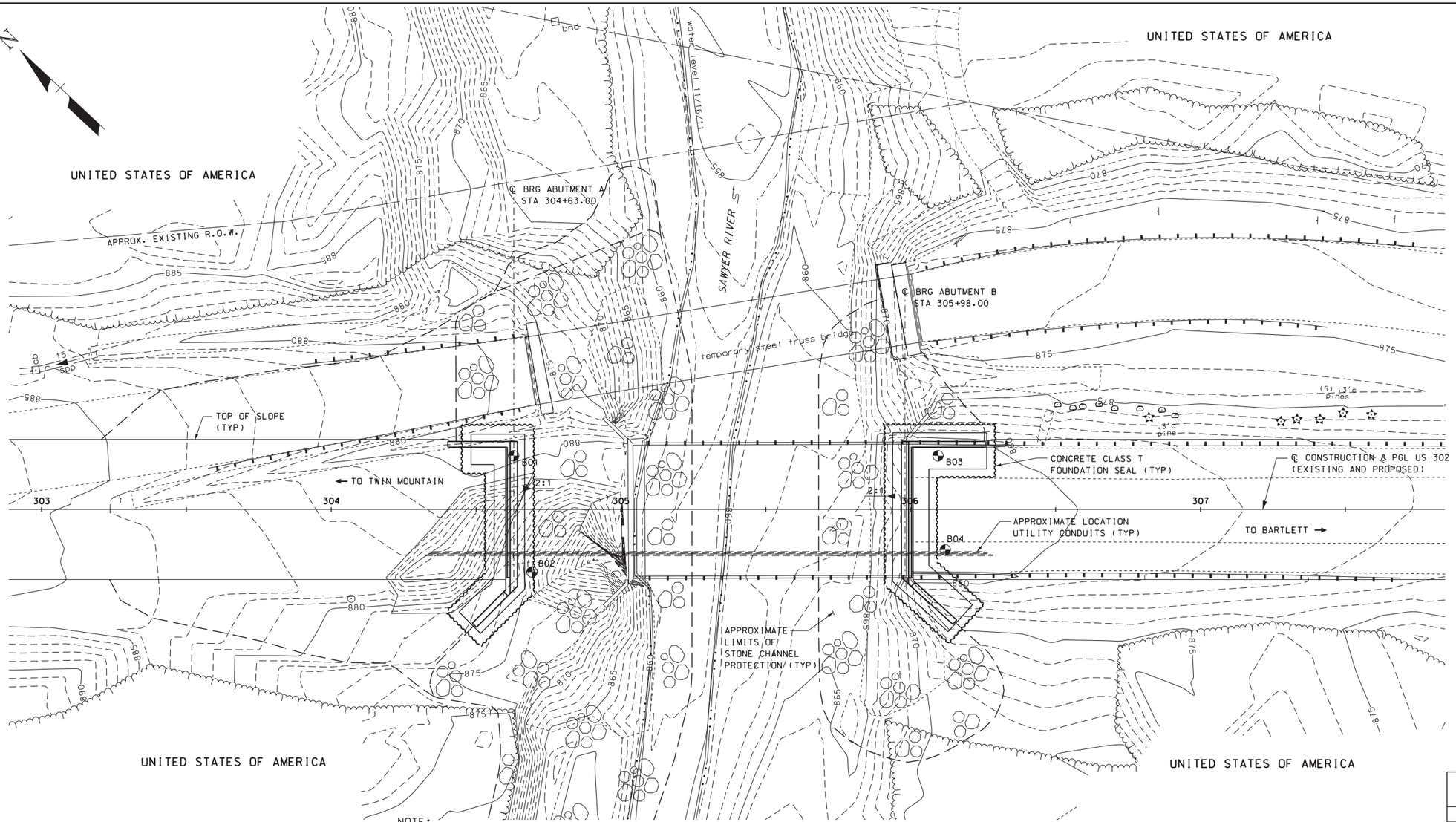
TOWN HARTS LOCATION BRIDGE NO. 235/059 STATE PROJECT 16396A
LOCATION US 302 OVER SAWYER RIVER

GENERAL PLAN AND ELEVATION

BRIDGE SHEET 1 OF 3
FILE NUMBER

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JCH	01/12	CHECKED	TTK	01/12
	DRAWN	PBD	01/12	CHECKED	JCH	01/12
	QUANTITIES			CHECKED		
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS
	REV. DATE				1	5

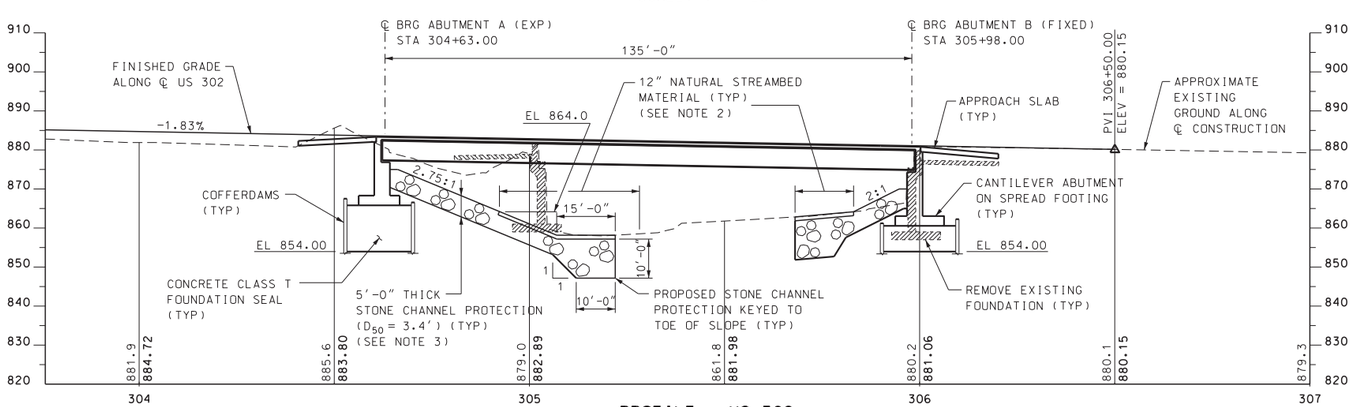
16:24 26-JAN-2012 smerkwon
M:s17513.05 Sawyer River Bridges\Draws\DrawingsPlans\16396Genplan235_059.dgn



NOTE:
SEE ROADWAY PLANS FOR COMPLETE
LIMITS OF STONE CHANNEL PROTECTION

PLAN
SCALE: 1" = 20'

BORING LOCATIONS				
NUMBER	STATION	OFFSET	NORTHING	EASTING
B01	304+63	19' LT	577973	1067490
B02	304+69	22' RT	577941	1067465
B03	306+10	19' LT	577866	1067590
B04	306+12	14' RT	577842	1067568



PROFILE - US 302
SCALE: 1" = 20'

NOTES

1. FOUNDATION SYSTEM LAYOUT IS APPROXIMATE AND BASED ON PRELIMINARY DESIGN. FINAL FOUNDATION SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. THE CONTRACTOR SHALL COVER THE STONE CHANNEL PROTECTION WITH 12" OF STOCKPILED NATURAL STREAMBED MATERIAL WITHIN THE LIMITS SHOWN ON THE PLAN.
3. THE LIMITS AND DETAILS OF STONE CHANNEL PROTECTION SHOWN ARE CONCEPTUAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING THE FINAL SCOUR PROTECTION SYSTEM, INCLUDING BUT NOT LIMITED TO STONE GRADATION, PROPOSED SITE GRADING, AND FLANKING DETAILS AT THE UPSTREAM AND DOWNSTREAM LIMITS.

LEGEND

DENOTES EXISTING FOUNDATIONS TO BE REMOVED

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

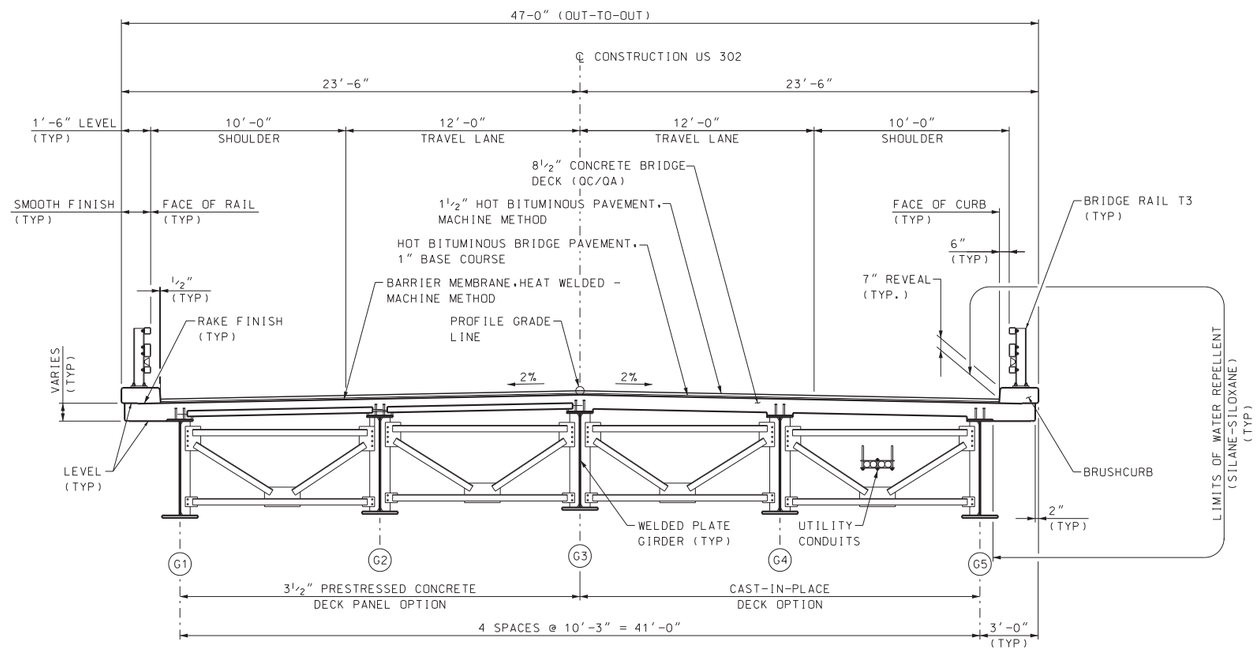
TOWN HARTS LOCATION BRIDGE NO. 235/059 STATE PROJECT 16396A
LOCATION US 302 OVER SAWYER RIVER

SITEPLAN AND PROFILE

BRIDGE SHEET 2 OF 3
FILE NUMBER

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JCH	01/12	CHECKED	TTK	01/12
	DRAWN	PBD	01/12	CHECKED	JCH	01/12
	QUANTITIES			CHECKED		
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO. 2	TOTAL SHEETS 5
	REV. DATE					

16:24 26-JAN-2012 smerkwan
M:\17513.05 Sawyer River Bridges\Draws\Drawings\Plans\16396Siteplan235_059.dgn



TYPICAL DECK SECTION

SCALE : ¼" = 1'-0"

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN HARTS LOCATION | BRIDGE NO. 235/059 | STATE PROJECT 16396A

LOCATION US 302 OVER SAWYER RIVER

TYPICAL DECK SECTION

BRIDGE SHEET 3 OF 3

FILE NUMBER

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	JCH	01/12	CHECKED	TTK	01/12
	DRAWN	PBD	01/12	CHECKED	JCH	01/12
	QUANTITIES			CHECKED		

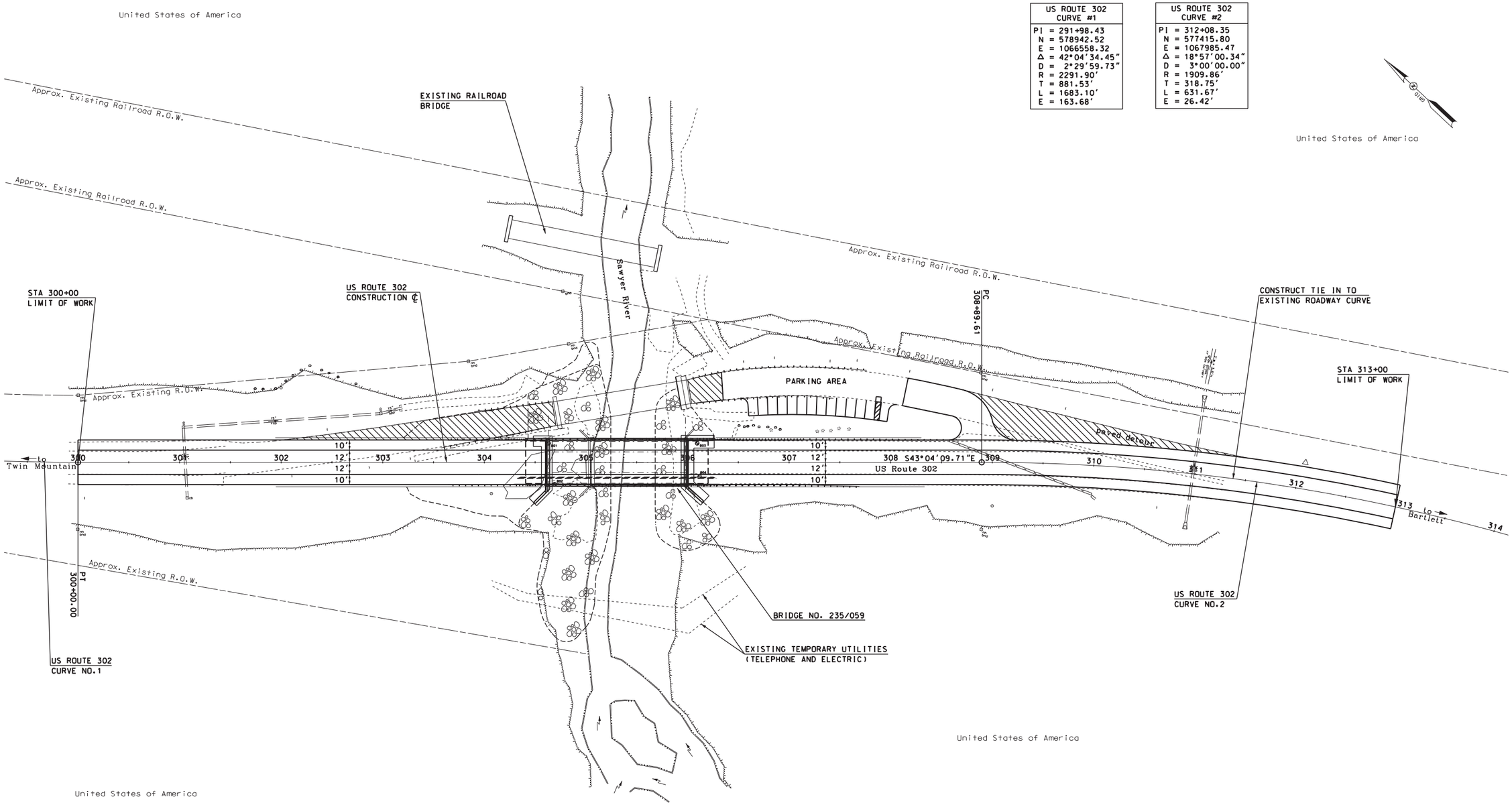
ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE		3	5

16:24 26-JAN-2012 smerkwan
M:s17513.05 Sawyer River Bridges\Drawings\Plans\16396\decksect235_059.dgn

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.	16396-A	4	5

US ROUTE 302 CURVE #1
PI = 291+98.43
N = 578942.52
E = 1066558.32
Δ = 42°04'34.45"
D = 2°29'59.73"
R = 2291.90'
T = 881.53'
L = 1683.10'
E = 163.68'

US ROUTE 302 CURVE #2
PI = 312+08.35
N = 577415.80
E = 1067985.47
Δ = 18°57'00.34"
D = 3°00'00.00"
R = 1909.86'
T = 318.75'
L = 631.67'
E = 26.42'



REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS		
BOOK	PAGE	
BOOK	PAGE	

EXISTING DETAIL		DATE
PROPOSED DESIGN	MAH	DATE 01/12
SHEET CHECKED	BRC	DATE 01/12
AS BUILT DETAILS		DATE

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ○ BUREAU OF HIGHWAY DESIGN

GENERAL PLAN 01

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
	16396-A	4	5

M:\17513.05 Sawyer River Bridge\Draw\Drawings\Plans\Hwy\16396g01.dgn 16:28 26-JAN-2012 16396g01

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N.H.	16396-A	5	5

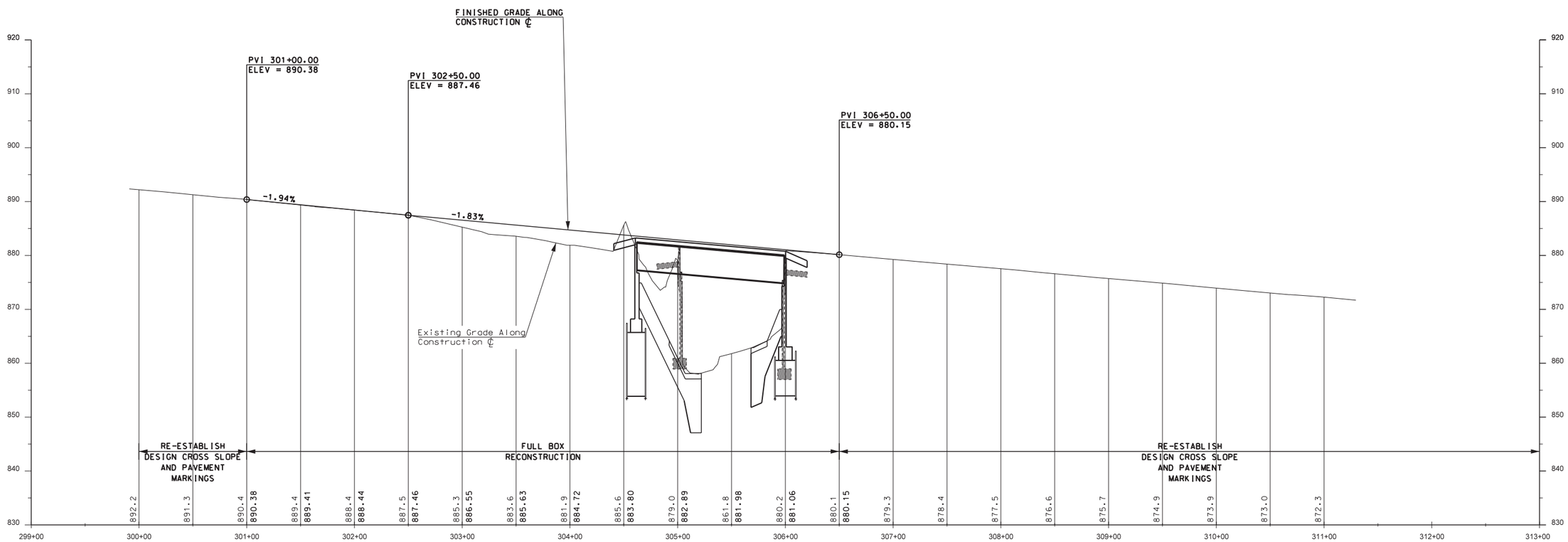
REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

NOTEBOOKS

BOOK	PAGE
BOOK	PAGE

	DATE
EXISTING DETAIL	
PROPOSED DESIGN MAH	DATE 01/12
SHEET CHECKED BRC	DATE 01/12
AS BUILT DETAILS	DATE



US ROUTE 302

SCALE:
1"= 50' HORIZ.
1"= 10' VERT.

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

PROFILE
US ROUTE 302

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
	16396-A	5	5

M:\17513.05 Sawyer River Bridge\Draw\Drawings\Plans\Hwy\16396p01.dgn 16:27 26-JAN-2012 16396p01