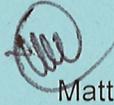


STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION


FROM: Matt Urban
Wetlands Program Manager

DATE: January 27, 2016

AT (OFFICE): Department of
Transportation

SUBJECT Dredge & Fill Application
Farmington, 16146

Bureau of
Environment

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

Forwarded herewith is the application package prepared by Normandeau Associates and CLD for the NH DOT. This project is classified as Major per Env-Wt 303.02(p). The project is located on NH Route 153 (Bridge# 096/141) over the Cochecho River in the Town of Farmington. The proposed work consists of replacing the existing 45'-6" span bridge with a 71' single span structure compliant with the stream crossing rules. The Department is also proposing to dredge an area of the riverbed and bank measuring 2,078 s.f., 6 inches in depth approximately 39 cubic yards, in order to bring the adjacent flood protection levee into compliance with the requirements of the Army Corps of Engineers.

This project was reviewed at several Natural Resource Agency Coordination Meetings. The minutes from those meetings have been included within this application package and can also be found on the Department's website via the following link:
<http://www.nh.gov/dot/org/projectdevelopment/environment/units/project-management/nracrmeetings.htm>

As a compliantly sized new Tier 3 stream crossing design, this project is considered self-mitigating and therefore no mitigation is being proposed.

A payment voucher has been processed for this application (Voucher #424290) in the amount of \$1,555.60.

The lead people to contact for this project are Don Lyford, Highway Design, (271-2717 or dlyford@dot.state.nh.us) or Robert Landry, Bridge Design, (271-2731 or orlandry@dot.state.nh.us) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or murban@dot.state.nh.us) If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

MRU:mru
Enclosures
cc:
BOE Original
Town of Farmington (4 copies via certified mail)
Bureau of Construction
Randy Talon, Environment
Carol Henderson, NH Fish and Game
Maria Tur, USF&WS
Edna Feighner, DHR (Adverse Effect Memo RPR-4449)
Mark Kern, EPA
Mick Hicks, US Army Corp of Engineers
Cochecho River Local Advisory Committee (via certified mail)

NH Route 153 over Cocheco River Bridge Replacement NHDES Standard Dredge and Fill Application

State of New Hampshire
Department of Transportation
Farmington, New Hampshire
NH 16146 X-A001(152)



December, 2015

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AVAILABLE REPORTS

Drainage Report For New Hampshire Route 153 Over Cocheco River Farmington, New Hampshire X-A001(152), 16146

Engineering Design Report for New Hampshire Route 153 over Cocheco River Farmington, New Hampshire X-A001(152), 16146

New Hampshire Historic Property Documentation NHDOT Bridge 096/140



WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau

Land Resources Management

Check the status of your application: <http://des.nh.gov/onestop>



RSA/Rule: Env-Wt 100-900

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

1. REVIEW TIME:

Indicate your Review Time below. Refer to Guidance Document A for instructions.

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

2. PROJECT LOCATION:

Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: Route 153		TOWN/CITY: Farmington	
TAX MAP: NA	BLOCK: NA	LOT: NA	UNIT: NA
USGS TOPO MAP WATERBODY NAME: Cocheco River		<input type="checkbox"/> NA	STREAM WATERSHED SIZE: 35 sq mi. <input type="checkbox"/> NA
LOCATION COORDINATES (If known): 71°3'36.596"W 43°23'12.997"N			<input type="checkbox"/>
Latitude/Longitude <input type="checkbox"/> UTM <input type="checkbox"/> State Plane			

3. PROJECT DESCRIPTION:

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

The NH Department of Transportation (NHDOT) proposes to replace bridge 096/140, carrying NH Route 153 over the Cocheco River in Farmington, New Hampshire (Exhibit A - Location Map). The reconstructed structure will accommodate one lane of traffic (one in each direction) with 5-foot paved shoulders on both sides and a 5-foot sidewalk on the south side. The project also involves dredging 2,078 sf of sediment to protect the adjacent levee.

4. SHORELINE FRONTAGE

NA This lot has no shoreline frontage. SHORELINE FRONTAGE:

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

5. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

A shoreland notification will be submitted for this project.

6. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

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

- a. Natural Heritage Bureau File ID: NHB 15 - 3345
- b. Designated River the project is in ¼ miles of: Cocheco River; and
 date a copy of the application was sent to the Local River Management Advisory Committee: Month: ___ Day: ___ Year: ___
- NA

7. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: Landry, L. Robert			
TRUST / COMPANY NAME: NHDOT		MAILING ADDRESS: 7 Hazen Drive	
TOWN/CITY: Concord		STATE: NH	ZIP CODE: 03302
EMAIL or FAX: rlandry@dot.state.nh.us		PHONE: (603) 271-2731	
ELECTRONIC COMMUNICATION: By initialing here <u>LL</u> , I hereby authorize NHDES to communicate all matters relative to this application electronically			

8. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.:			
TRUST / COMPANY NAME:		MAILING ADDRESS:	
TOWN/CITY:		STATE:	ZIP CODE:
EMAIL or FAX:		PHONE:	
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically			

9. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: Chase, Vicki		COMPANY NAME: Normandeau Associates	
MAILING ADDRESS: 25 Nashua Road			
TOWN/CITY: Bedford		STATE: NH	ZIP CODE: 03110
EMAIL or FAX: vchase@normandeau.com		PHONE: (603) 637-1111	
ELECTRONIC COMMUNICATION: By initialing here <u>vpc</u> , I hereby authorize NHDES to communicate all matters relative to this application electronically			

10. PROPERTY OWNER SIGNATURE:

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

By signing the application, I am certifying that:

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

	L. Robert Landry Jr.	1/26/2016
Property Owner Signature	Print name legibly	Date

MUNICIPAL SIGNATURES

11. CONSERVATION COMMISSION SIGNATURE

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

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

	Print name legibly	Date
----------------------------------------------------------------------------------	--------------------	------

DIRECTIONS FOR CONSERVATION COMMISSION

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

12. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

	Print name legibly	Town/City	Date
------------------------------------------------------------------------------------	--------------------	-----------	------

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

13. IMPACT AREA:

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

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

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

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.	TEMPORARY Sq. Ft. / Lin. Ft.
Forested wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Scrub-shrub wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Emergent wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Wet meadow	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Intermittent stream	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Perennial Stream / River	2,336 / 360 <input type="checkbox"/> ATF	2,205 / 60 <input type="checkbox"/> ATF
Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Intermittent stream	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Perennial stream / River	2,754 / 390 <input type="checkbox"/> ATF	483 / 40 <input type="checkbox"/> ATF
Bank - Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Tidal water	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Salt marsh	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Sand dune	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland buffer	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Undeveloped Tidal Buffer Zone (TBZ)	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Previously-developed upland in TBZ	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Lake / Pond	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - River	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Tidal Water	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
TOTAL	5,090 / 750	2,688 / 100

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

Minimum Impact Fee: Flat fee of \$ 200

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

Permanent and Temporary (non-docking) 7,778 sq. ft. X \$0.20 = \$ 1,555.60

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

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

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

Total = \$

The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 1,555.60

shoreland@des.nh.gov or (603) 271-2147

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

www.des.nh.gov

Attachment A

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

Respond with statements demonstrating:

1. The need for the proposed impact.

The NH Department of Transportation (NHDOT) proposes to replace bridge 096/140, carrying NH Route 153 over the Cocheco River in Farmington, New Hampshire (Exhibit A - Location Map). The rehabilitated structure is anticipated to accommodate one lane of traffic (one in each direction) with 5-foot paved shoulders on both sides and a 5-foot sidewalk on the upstream side of the bridge. NHDOT also proposes to dredge an area of riverbed and bank measuring 2,078 square feet in order to bring the adjacent flood protection levee into compliance with the requirements of the Army Corps of Engineers as depicted on the Wetland Impact Plan and as detailed in the attached correspondence dated July 17, 2014 (Exhibit K – Levee Report). The depth of the proposed dredge is 6-inches and will result in approximately 39 cubic yards of material being removed from the channel.

Existing Conditions

The existing bridge is a 48-foot long two-span structure consisting of concrete encased steel girders, with an out-to-out width of 40'-6". The face of abutment to face of abutment dimension is 45'6". The foundations consist of concrete faced stone abutments and wingwalls, and a concrete pier. The existing waterway opening is 43 feet. A flood control berm is located along the west side of the river, and extends approximately 3,100 feet upstream and 200 feet downstream. The face of western bridge abutment is located approximately at the toe of the berm slope. On the eastern side of the river an unmortared stone retaining wall extends from the abutment upstream. The bridge was built in 1924 and has an FHWA sufficiency rating of 11.3%, requiring replacement. It has been on the NHDOT Red List since 2004.

Proposed Bridge

The proposed bridge is a 71-foot single span structure consisting of precast prestressed concrete NEXT beams with a cast-in-place deck, with an out-to-out width of 40 feet. The face of abutment to face of abutment dimension is 69'0". The concrete abutments will be founded on spread footings on soil/ledge. The waterway opening area will be increased from the existing 43 feet to 69 feet by the increase in span as well as the removal of the

pier. The proposed low chord elevation will provide approximately 1.4 feet of clearance for the 100-year design flood. The increase in span also allows a 10-foot wide wildlife bench to be placed along the western bank under the bridge as depicted in the Site Plan and Profile, of the attached plans.

The eastern abutment will be placed in the same location as the existing, placing the face of the abutment at the face of the stone retaining wall. The western abutment will be located approximately 23 feet behind the existing. This location will place the abutment within the flood control berm limits. Construction methods of this abutment will include placing cofferdam to the elevation of the top of the berm and placement of low permeability fill to maintain the integrity of the berm at all times. To further ensure the integrity of the berm the cofferdam for the western abutment will be cut-off to three feet below grade and left in place.

Traffic will be maintained throughout construction on a two-way temporary bridge placed on the downstream side of the existing bridge. This location was chosen as there were buildings adjacent to the bridge on the upstream side that prohibited the temporary roadway. The temporary bridge will span the river bank to bank and provide a hydraulic opening equivalent to the existing bridge structure.

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

Impacts to wetlands have been minimized to the extent possible. An Alternatives Analysis was prepared for the project that considered the No-Build alternative, rehabilitation of the existing bridge, and replacement of the existing bridge on a new alignment.

Alternatives Considered

ALTERNATIVE A: NO BUILD ALTERNATIVE

If no work is completed, this would require an eventual closure of the bridge. The Federal Sufficiency Rating is currently 11.3%; structures with ratings below 50% are generally slated for treatment. The bridge was posted on the State's Red List in 2004 and has substantial deterioration that needs to be addressed in the short term to maintain this corridor for vehicular travel. As of the last inspection, the superstructure, deck and substructures all have a rating of 4 (Poor). This is an important corridor for the community, especially for emergency services. Closure of the bridge is not feasible for sustaining the community and would significantly increase emergency response times, which would be unacceptable to the Town.

ALTERNATIVE B: BRIDGE REHABILITATION

The existing bridge has sustained substantial deterioration, especially the concrete portions of the structure, including the concrete encasement of the main carrying beams, the deck,

abutments, pier and the railing. Heavy spalling and delamination of the concrete members and exposed rebar is noted repeatedly on the inspection reports. Retaining any portion of the concrete superstructure is not feasible given the current condition. It is possible that the existing steel beams could be retained, with new reinforced concrete encasements, deck and railing constructed. Rehabilitation of the substructures would include removal of the existing deteriorated concrete faces to sound concrete (depth expected of approximately 6"). It is anticipated that 75% of the abutment and pier faces would need rehabilitation, and the entire surfaces must then be sealed.

There is scour and undermining of the existing foundations, which would require scour protection measures to stabilize the abutments and piers for the rehabilitated structure. These measures would likely reduce the waterway opening for the river, increasing flooding potential. Both the Town of Farmington (the flood control project sponsor) and the USACE must approve any proposed project at this location due to the presence of the flood control berm. They have noted that any proposal which would result in any increase in flooding potential would not be accepted.

This type of rehabilitation would require installation of a temporary bridge to maintain two lanes of traffic throughout construction. The temporary bridge would be installed on the downstream side of the project, requiring temporary easements from private property owners. It is anticipated that approximately 500 feet of the roadway would need to be repaved following removal of the detour prior to completion of the rehabilitated structure project.

Project costs for this alternative, including engineering, Right-of-Way acquisition and construction of the temporary bridge as well as the structure rehabilitation (assuming existing steel beams are suitable for reuse), are anticipated to be approximately \$3.0 million (*This assumes approach pavement replacement only, and no drainage upgrades*). The anticipated life span of the rehabilitated bridge would be approximately 35 years, with an expected maintenance cost of approximately \$180,000 during that time span.

ALTERNATIVE C: BRIDGE BYPASS

Replacement of the bridge on a new alignment was considered, which would allow for the existing bridge to be maintained in its current location. The existing bridge would be closed to traffic and used as a multimodal crossing. Replacement on an upstream alignment would require removal of at least three buildings (at least one of which is potentially historic, and another is a former gas station) and purchase of those properties for the project, so this was not investigated. A downstream alignment was investigated which would require significant permanent private property acquisition, including impacting almost all of the parking area for an adjacent apartment building (potentially historic) and which could require purchase of the entire property. In addition, a gas station property would be impacted which could lead to significant additional costs. This active gas station has had previous remediation activities that have been documented by NHDES. The file is closed;

however, with the previous activity in the area, a Worker's Health and Safety Plan should be completed in the event contaminants are found during disturbance at this site. This alternative provides a less desirable roadway alignment than the preferred alternative. Some rehabilitation work would be required to the existing bridge to repair the existing deteriorated concrete on the substructures, beam encasements and deck. The existing railing height does not meet height requirements for pedestrian or bicycle railing, and given its current condition, replacement of the railing is expected for this alternative.

Project costs for this alternative, including engineering, Right-of-Way acquisition and construction, are anticipated to be approximately \$3.7 million, compared with an estimated \$3.4 million for the preferred alternative. Long-term maintenance cost for the existing and replacement bridges over the first 35 years is estimated at approximately \$230,000. Lifespan of the replacement bridge is expected to be 75 years.

ALTERNATIVE ANALYSIS SUMMARY

Based on the extent of the existing bridge deterioration, importance of the bridge for commerce, mutual aid and school transportation, and the anticipated life span of the alternatives, the proposed action is replacement of the bridge on existing alignment, with a two lane temporary bridge located downstream. Temporary and permanent property impacts for this alternative would be very similar to the expected temporary impacts of Alternative B; permanent property impacts would be much less than Alternative C. Removal of the existing bridge is preferred due to the total project cost for the bypass alternative and lack of funding for future maintenance and rehabilitative work on the bypassed bridge. The community supports bridge replacement with removal of the existing bridge.

3. The type and classification of the wetlands involved.

Wetlands proposed to be impacted include Riverine, Lower Perennial, Unconsolidated Bottom, Cobble/Gravel Substrate (R2UB1); and jurisdictional Riverbank.

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

The wetlands proposed to be affected all are associated with the Cocheco River, which flows south into the Piscataqua River in Dover, NH. The Cocheco River becomes tidal in Dover, NH, but there is no tidal influence at the bridge.

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

The wetlands proposed to be impacted are all common wetland types typical of this part of New Hampshire.

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

The project as proposed will involve 2,688 square feet of temporary impact and 5,090 square feet of permanent impact to wetland resources.

7. The impact on plants, fish and wildlife including, but not limited to:

- a. Rare, special concern species;**
- b. State and federally listed threatened and endangered species;**
- c. Species at the extremities of their ranges;**
- d. Migratory fish and wildlife;**
- e. Exemplary natural communities identified by the DRED-NHB; and**
- f. Vernal pools.**

New Hampshire Natural Heritage Bureau (NHNHB)

A data request to the New Hampshire Natural Heritage Bureau was made and the response indicated that five species were known to occur in the vicinity of the project:

- American Eel (*Anguilla rostrata*) Special Concern,
- Blanding's Turtle (*Emydoidea blandingii*) State Endangered,
- Bridle Shiner (*Notropis bifrenatus*) State Threatened,
- Spotted Turtle (*Clemmys guttata*) State Threatened,
- Wood Turtle (*Glyptemys insculpta*) Special Concern.

(Exhibit B – NH Natural Heritage Bureau Response NHB15-3455)The New Hampshire Fish and Game Department requested additional information about the areas proposed to be dredged (Exhibit C – NHFG Correspondence). The information has been provided and NHDOT awaits additional guidance from NHFG on potential effects to the species listed above.

United States Fish and Wildlife (USFWS)

An environmental review was conducted through the US Fish and Wildlife Service's (USFWS) online Information for Planning and Conservation website (IPaC). The response indicated that the federally threatened northern long-eared bat (*Myotis septentrionalis*) has the potential to occur within the project area. (Exhibit D - USFW IPAC response)

Informal consultation performed for the northern long-eared bat under the "Federal Highway Administration (FHWA) and Federal Railroad Administration (FRA) Range-wide Programmatic Informal Consultation for Indiana Bat and Northern Long-eared Bat" indicated that there will be no effect to this species from the proposed project. (Exhibit E – USFWS NLEB Consultation and Exhibit F – Bridge Inspection Report).

The Town of Farmington is identified as a town known to have populations of Small-whorled Pogonia, a federally threatened orchid, which prefers forests with somewhat poorly drained soils and/or a seasonally high water table. The species was not identified by

NHNHB as being in the project area and there is no suitable habitat that would be affected by the proposed project (typically hardwood stands with an open understory). Under the New England Field Office's consultation process, it was determined that small whorled pogonia is not present. (Exhibit G – No Species Present Letter.)

National Marine Fisheries Service (NMFS) and NH Fish and Game Department (NHFG)

Because of the Cocheco River's connection to tidal waters downstream of the project, an Essential Fish Habitat Assessment (EFH Assessment) was undertaken in order to identify any habitat for species protected under the Magnuson-Stevens Act of 1976. The EFH Assessment determined that Atlantic Salmon would not be present in this portion of the river because of the presence of a two dams that preclude upstream movement of fish downstream of the Route 153 bridge. The National Marine Fisheries Service (NMFS) was contacted to confirm this finding. The NMFS concurred with the finding for Atlantic Salmon, but said that American Eels were known to be present in the Cocheco River in several locations. American Eels are not protected under the Magnuson-Stevens Act of 1976, but are covered under the Fish and Wildlife Coordination Act. The New Hampshire Fish and Game's (NHFG) Marine Division was contacted via telephone on December 17, 2013. NHFG advised that the primary time when eels would be present would be during the adult eel yearly migration out to sea between October and December. Nighttime work would be a concern as the eels would tend to be held up in holes. NHFG felt that the new replacement structure, with a natural stream bottom, wouldn't be a concern for passage. They requested that once the contractor's actual construction start date is known, NHDOT consult with NHFG's Marine Division and NOAA Fisheries to further discuss timing considerations.

Additional consultation with NHFG followed to clarify the requirements for contract stipulations and to identify any concerns that would be caused by the proposed shoal dredge.

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

The project will improve public commerce, navigation, and recreation by providing a safe means of access across the Cocheco River. The dredging of the shoal area will bring the adjacent levee into compliance with ACOE's requirements.

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

The project will not interfere with the aesthetic interests of the general public. The existing bridge is deteriorating and will be replaced with a functioning bridge. Aesthetic concerns

STANDARD DREDGE AND FILL WETLAND APPLICATION

have been considered in all aspects of bridge design. The dredging of the shoal will have no impact to aesthetic interests of the public.

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

The project will not interfere with public rights of passage or access. Traffic will be maintained over a temporary bridge to be located directly downstream of the existing bridge during construction. The dredging of the shoal will have no impact to public access.

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

The impact to abutting property owners will be positive, as it will improve safety and sight distances for the bridge approaches. The proposed bridge abutments were located with the least impact to abutting properties possible. The dredging of the shoal will provide improved safety by improving the effectiveness of the adjacent levee.

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

The project will improve health, safety, and well-being of the general public by providing a safer means of access over the Cocheco River and by protecting the adjacent levee.

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

There will be no impact to the quantity or quality of surface and ground water.

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

The project will not cause flooding, erosion, or sedimentation. All appropriate erosion and sedimentation controls will be used during construction to prevent sedimentation or turbidity in the Cocheco River.

A Hydraulic Analysis was prepared for the project that documents the existing and proposed conditions for the 10, 50, and 100 year storms. The study demonstrates that there is no freeboard at the bridge during the 100-year storm event. Under the proposed condition, the bridge will provide 1.4 feet of freeboard during the 100-year storm event, exceeding the NHDOT's design standard of 1 foot of freeboard for the 100-year storm event. (Exhibit I – HEC RAS Analysis Pre and Post Summary Tables)

The shoal area does not currently impound water, therefore the removal is unlikely to increase the downstream flooding. The NHDES has suggested a hydraulic analysis and/or geofluvial stream assessment to confirm this. Based on the existing hydraulic studies that were completed in association with the bridge work, it is expected that removing the shoal material will have a negligible effect on the hydraulic model and results as described above. The cross-sectional area of the shoal material is only 1.7% of the total 100-year flood area which is insignificant given the accuracy of HEC RAS modeling capabilities. Therefore based on the existing studies predicting 1.4 feet of freeboard during the 100-year storm event at the bridge and the known limitations of HES-RAS modeling capabilities for the amount of shoal material in the channel to be removed, it has been determined that additional hydraulic analysis would provide no greater details regarding the potential for downstream flooding than what is currently known, which is that it will not have an effect upstream or downstream.

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

The existing bridge has a center pier that affects currents of the river. The center pier is proposed to be removed, and there is nothing in the proposed design that will reflect or redirect current or wave energy.

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

If all abutters to the project also built bridges over the Cocheco River there would be additional impacts to the river, however, this is unlikely to occur.

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

STANDARD DREDGE AND FILL WETLAND APPLICATION

<p>The project will provide an improvement to the wildlife habitat of the Cocheco River by providing an improved hydraulic opening and a wildlife bench for terrestrial wildlife.</p>
<p>18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.</p>
<p>NA</p>
<p>19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.</p>
<p>NA</p>
<p>20. The degree to which a project redirects water from one watershed to another.</p>
<p>NA</p>
<p>Additional Comments</p>
<p> </p>



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

**New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)**

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to “work” include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	x	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	x	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org , specifically the book Natural Community Systems of New Hampshire .		x
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	x	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		x
2.5 The overall project site is more than 40 acres.		x
2.6 What is the size of the existing impervious surface area?	32,271	
2.7 What is the size of the proposed impervious surface area?	32,271	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	60%	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)	x	
3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at: <ul style="list-style-type: none"> • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html. 		x

3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		x
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		x
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	x	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	x	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	NA	
5. Historic/Archaeological Resources		
For a minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) shall be sent to the NH Division of Historical Resources as required on Page 5 of the PGP**	x	

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

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

Army Corps of Engineers Secondary Impacts Checklist Supplemental Narrative

1. Impaired Waters

1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water?

Yes. Aquatic life in this segment of the Cocheco River (identified as Assessment Unit NHRIV600030601-09 in the 2012 list of all Impaired Waters) is impaired by low pH, Aluminum, and Lead. Primary Contact Recreation is impaired by E. coli. The proposed project is providing treatment of stormwater to the extent possible at this location, and described in the Drainage Report prepared for this project, available upon request.

2. Wetlands

2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?

Yes. The bridge crosses the Cocheco River.

3. Wildlife

3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)

New Hampshire Natural Heritage Bureau (NHNHB)

A data request to the New Hampshire Natural Heritage Bureau was made and the response indicated that five species were known to occur in the vicinity of the project:

American Eel (*Anguilla rostrata*) Special Concern,
Blanding's Turtle (*Emydoidea blandingii*) State Endangered,
Bridle Shiner (*Notropis bifrenatus*) State Threatened,
Spotted Turtle (*Clemmys guttata*) State Threatened,
Wood Turtle (*Glyptemys insculpta*) Special Concern.

(Exhibit B – NH Natural Heritage Bureau Response NHB15-3455)The New Hampshire Fish and Game Department requested additional information about the areas proposed to be dredged (Exhibit C – NHFG Correspondence). The information has been provided and NHDOT awaits additional guidance from NHFG on potential effects to the species listed above.

United States Fish and Wildlife (USFWS)

An environmental review was conducted through the US Fish and Wildlife Service's (USFWS) online Information for Planning and Conservation website (IPaC). The response indicated that the federally threatened northern long-eared bat (*Myotis septentrionalis*) has the potential to occur within the project area. (Exhibit D - USFW IPAC response)

Informal consultation performed for the northern long-eared bat under the “Federal Highway Administration (FHWA) and Federal Railroad Administration (FRA) Range-wide Programmatic Informal Consultation for Indiana Bat and Northern Long-eared Bat” indicated that there will be no effect to this species from the proposed project. (Exhibit E – USFWS NLEB Consultation and Exhibit F – Bridge Inspection Report).

The Town of Farmington is identified as a town known to have populations of Small-whorled Pogonia, a federally threatened orchid, which prefers forests with somewhat poorly drained soils and/or a seasonally high water table. The species was not identified by NHNHBB as being in the project area and there is no suitable habitat that would be affected by the proposed project (typically hardwood stands with an open understory). Under the New England Field Office’s consultation process, it was determined that small whorled pogonia is not present. (Exhibit G – No Species Present Letter.)

National Marine Fisheries Service (NMFS) and NH Fish and Game Department (NHFG)

Because of the Cocheco River’s connection to tidal waters downstream of the project, an Essential Fish Habitat Assessment (EFH Assessment) was undertaken in order to identify any habitat for species protected under the Magnuson-Stevens Act of 1976. The EFH Assessment determined that Atlantic Salmon would not be present in this portion of the river because of the presence of a two dams that preclude upstream movement of fish downstream of the Route 153 bridge. The National Marine Fisheries Service (NMFS) was contacted to confirm this finding. The NMFS concurred with the finding for Atlantic Salmon, but said that American Eels were known to be present in the Cocheco River in several locations. American Eels are not protected under the Magnuson-Stevens Act of 1976, but are covered under the Fish and Wildlife Coordination Act. The New Hampshire Fish and Game’s (NHFG) Marine Division was contacted via telephone on December 17, 2013. NHFG advised that the primary time when eels would be present would be during the adult eel yearly migration out to sea between October and December. Nighttime work would be a concern as the eels would tend to be held up in holes. NHFG felt that the new replacement structure, with a natural stream bottom, wouldn’t be a concern for passage. They requested that once the contractor’s actual construction start date is known, NHDOT consult with NHFG’s Marine Division and NOAA Fisheries to further discuss timing considerations.

Additional consultation with NHFG followed to clarify the requirements for contract stipulations and to identify any concerns that would be caused by the proposed shoal dredge. NHFG requested that information about the proposed new channel cross section, longitudinal profiles, and channel materials match those of a natural channel following construction.

4. Flooding/Floodplain Values

4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?

Yes. The project lies within the 100-year floodplain of the Cocheco River. (Exhibit H – FEMA Floodplain) Under a 1950's era Army Corps of Engineers (ACOE) project, the section of Cocheco River located immediately upstream from the project was reconstructed to create a flood levee system. The banks along the northern extent of the river were raised, creating a vegetated berm with approximate slope of 2.5H:1V, and an overflow gate was installed near the bridge. Along the upstream southern bank, an approximate 80-ft long stone retaining wall exists adjacent to the bridge. The proposed project would not adversely affect this flood levee system.

The proposed dredging of the shoal is requested by the Engineering and Planning Division of the ACOE. A report documenting the deficiencies of the existing levee and recommending the removal of the shoal is included with this application Exhibit J – Levee report.

5. Historic/Archaeological Resources

For a minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) shall be sent to the NH Division of Historical Resources as required on Page 5 of the PGP.

The project was reviewed with NHDHR, FHWA, ACOE, and NHDOT at regularly scheduled Cultural Resource Agency Coordination Meetings on November 14, 2013 and December 5, 2013. Based on a review pursuant to 36 CFR 800.4 of the architectural and/or historical significance of resources in the area of potential effect, the bridge was found to be eligible for the National Register of Historic Places due to engineering significance. Other existing structures located within the project corridor were evaluated for historic significance and reviewed by NHDHR. No other structures were found to be eligible for the National Register.

Applying the criteria of effect at 36 CFR 800.5, it was determined that the Preferred Alternative (bridge replacement) will have an adverse effect on the bridge (see Exhibit L – Determination of Effect Memo).

Appropriate mitigation for the removal of the eligible bridge is recorded in a Memorandum of Agreement (MOA) signed by NHDHR, NHDOT, and FHWA in August 2014. Mitigation components in the MOA are as follows:

- The preparation of abbreviated New Hampshire Property Documentation for the existing I-Beam bridge with concrete deck.
 - This shall include a historic significance statement, a brief description of the bridge, and a brief context of the bridge type, site plan, USGS map, historic maps and photographs and a bibliography.

- The documentation package will also include archival large-format black-and-white 4 x 5 photographs of the superstructure, substructure, relationship of the bridge to its setting, any engineering/aesthetic details and original construction plans, as well as a photo key.
- The development of a booklet/brochure that discusses the significance of the Main Street Bridge and important transportation themes in Farmington.
 - This effort will be developed in collaboration with the Town and/or Historical Society and will be placed on the Town and/or Historical Society's website.

A Phase IA/IB archaeological survey was completed within the project's area of potential effect (APE). It was determined that areas of archaeological sensitivity are not present within the APE.

Env-Wt 900 Stream Crossing Requirements

Because the project proposes to rehabilitate a Tier 3 stream crossing, conformance with rules under Env-Wt 900 is required.

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings.

Env-Wt 904.05 requires that new Tier 2 stream crossings, replacement Tier 2 stream crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 stream crossings shall be designed and constructed:

- (a) In accordance with the NH Stream Crossing Guidelines, University of New Hampshire, May 2009, which can be downloaded for free at http://www.unh.edu/erg/stream_restoration/;**

The New Hampshire Stream Crossing Guidelines recommend that the crossing should be an open bottom structure with (at a minimum) a width of 1.2 x bankfull width plus 2 feet. The bankfull width was determined using the existing conditions HEC-RAS model. In the HEC-RAS model, the existing bridge was removed and run using the 2.33 year design storm. River Stations 247+31 and 246+71 top width were averaged to calculate the bankfull width at the bridge crossing = 50.8 feet. The structural width was then calculated to be approximately 63 feet. The minimum hydraulic opening of 62.5 feet approximately meets this requirement; and the current proposed clear span of 68.5 feet exceeds the minimum hydraulic opening requirements and the stream crossing guidelines.

- (b) With the bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing;**

The bedforms and streambed characteristics will remain as they are currently and are comparable to those found upstream and downstream of the stream crossing.

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

There is currently no vegetated bank on both sides of the watercourse. However, a 10' wide wildlife shelf has been designed for the top of the slope nearest the western bridge abutment. Because of scour protection requirements, the wildlife shelf will be constructed out of Class A stone, and no vegetation is likely to grow there.

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

No alteration to the existing condition is proposed, and the natural alignment and gradient of the stream channel will be maintained. The removal of the center pier will allow the river to assume natural flow patterns that existed before the bridge was constructed.

(e) To accommodate the 100-year frequency flood, to ensure that:

(1) There is no increase in flood stages on abutting properties; and

The project as proposed will decrease flood stages on properties upstream and downstream of the bridge.

(2) Flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability;

The HEC-RAS analysis prepared for this project demonstrates that flow and sediment transport characteristics will not be affected in a manner which would adversely affect channel stability. (Exhibit I – HEC RAS Analysis Pre and Post Summary Tables) Furthermore, the dredging of the shoal is not anticipated to adversely affect channel stability.

(f) To simulate a natural stream channel; and

The stream channel under the bridge will more closely resemble a natural stream channel with a wider hydraulic opening and removal of the center pier.

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

Sediment transport competence will not be altered.

Env-Wt 904.01 General Design Considerations.

General Design Considerations in Env-Wt 904.01 requires that the replacement bridge:

(a) Not be a barrier to sediment transport;

Sediment transport is and will continue to be accommodated at this crossing.

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

High and low flows are and will continue to be accommodated.

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

Movement of indigenous aquatic life will not be disrupted. As noted previously, it is anticipated that the construction schedule will be timed to accommodate migration of the American Eel.

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

The hydraulic study undertaken for this project demonstrates that the bridge will prevent flooding upstream of the bridge during the 100-year flood. The model shows that under the existing condition, there is no freeboard behind the bridge during the 100-year flood. Under the proposed condition, the bridge will pass the 100-year flood with 1.4 feet of freeboard.

(e) Preserve watercourse connectivity where it currently exists;

Watercourse connectivity exists today and will continue to exist.

(f) Restore watercourse connectivity where:

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

Not applicable to this project.

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

The bridge as existing does not cause erosion, aggradation, or scouring upstream or downstream of the crossing, nor will it following construction.

(h) Not cause water quality degradation.

The proposed project will not cause water quality degradation. All appropriate erosion and sedimentation controls will be employed during construction to protect water quality in the stream.

Env-Wt 404.04 Rip-rap.

- (a) Rip-rap applications shall be considered only where the applicant demonstrates that anticipated turbulence, flows, restricted space, or similar factors render vegetative and diversion methods physically impractical.

Riprap channel protection was sized to prevent scour, using HEC-23's "Design Guideline 14, Sizing Rock Riprap at Abutments" (Reference 13). The average flows, velocity and flow depth at River Station 24704 BR U were used to calculate the riprap size needed to protect the left and right abutment. The hydraulic properties of the main channel were determined using the aid of HEC-RAS. It was found that Class A Stone Fill placed at a depth of 2.75 feet is sufficient for scour protection. The left and right abutment will have slope protection that perpetuates into the main channel.

- (b) Applications for rip-rap shall include:

(1) Designation of a minimum and maximum stone size;

The stone specified in the plans is Class A stone, which is described in the 2010 NHDOT Specification Book as:

"...irregular in shape with approximately 50 percent of the mass having a minimum volume of 12 ft³ (0.3 m³), approximately 30 percent of the mass ranging between 3 and 12 ft (0.08 and 0.3 m³), approximately 10 percent of the mass ranging between 1 and 3 ft³ (0.03 and 0.08 m³), and the remainder of the mass composed of spalls..."

(2) Gradation;

As above.

(3) Minimum rip-rap thickness;

The stone will be placed in one 4-foot thick layer.

(4) Type of bedding for stone;

The stone will be placed in situ with no change to the existing bedding over a geotextile layer.

(5) Cross-section and plan views of the proposed installation;

See Site Plan in attached plan set.

(6) Sufficient plans to clearly indicate the relationship of the project to fixed points of reference, abutting properties, and features of the natural shoreline; and

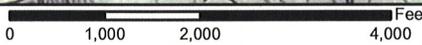
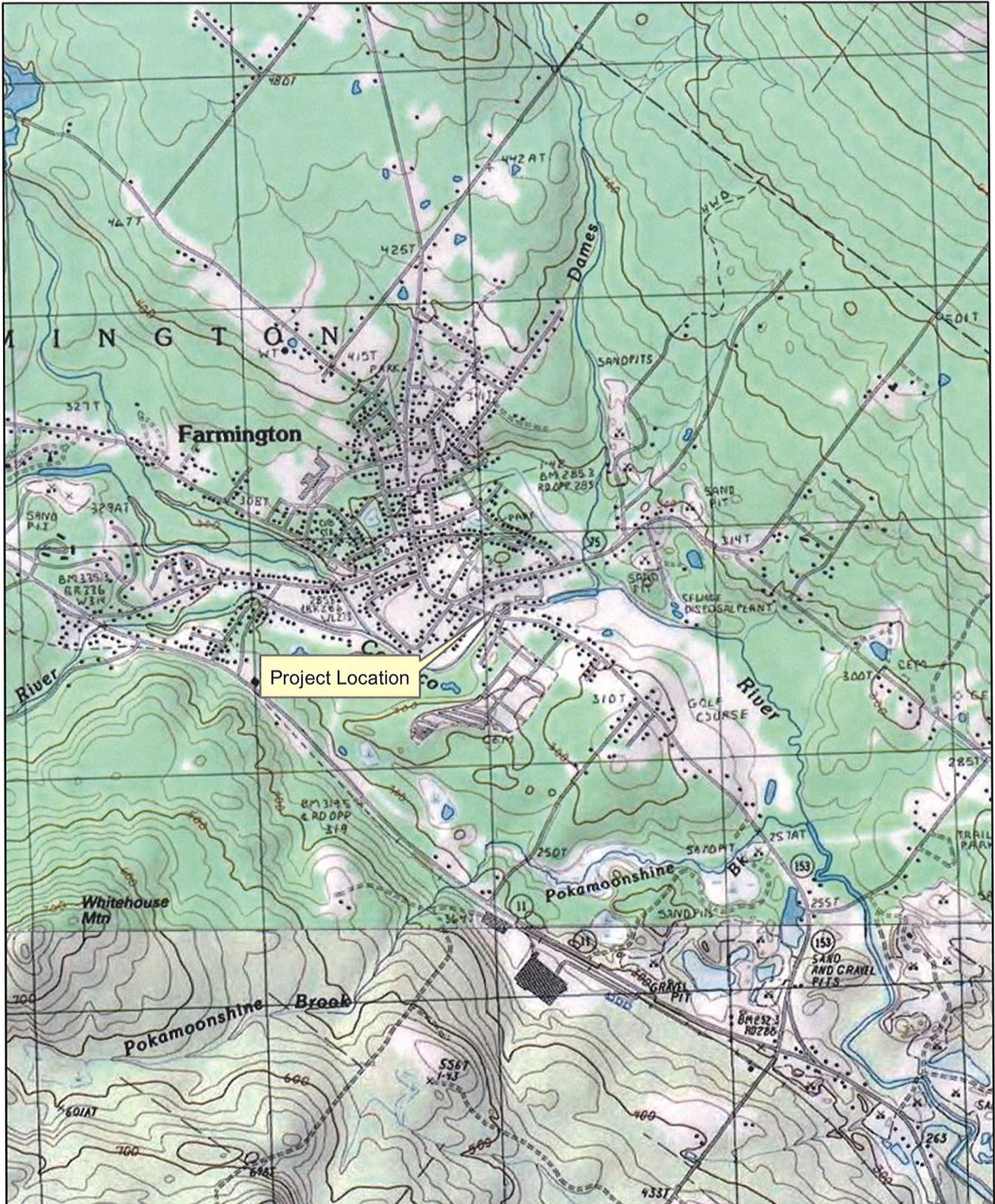
See Site Plan in attached plan set.

(7) A description of anticipated turbulence, flows, restricted space, or similar factors that would render vegetative and diversion methods physically impractical.

The scour study demonstrates that stone scour protection is needed to protect the bridge abutments. Vegetative and / or diversion methods are not feasible for this purpose.

Mitigation

As a major impact project under NH Administrative Rule Env-Wt 303.02 (i), NHDOT is required to propose mitigation for wetland impacts. As the project will provide a larger hydraulic opening and improved aquatic and terrestrial organism passage, NHDOT proposes that it is self-mitigating and no additional mitigation is proposed for the bridge replacement. The dredging of the 2,078 square feet for shoal removal (1,916 of riverbed and 162 square feet of jurisdictional bank) is required by the Army Corps of Engineers Planning Division. As such, the project will bring the existing flood control levee into compliance. No change to the river substrate or fish habitat is proposed for the shoal dredge and all appropriate erosion and turbidity controls will be used to protect water quality during construction. Presently, NHDOT does not propose to provide mitigation for the proposed project. Mitigation discussions are ongoing between NHDOT and NHDES, and NHDOT will submit a mitigation agreement if and when the need for mitigation is determined.



Date: 10/14/2015
 Drawn By: vchase
 Project No: 22505.000

NHDOT 16146
 FARMINGTON, NEW HAMPSHIRE
 ROUTE 153 OVER THE COCHECO RIVER

EXHIBIT A - PROJECT LOCATION

SCALE: 1:24,000



NOVEMBER 2015

Memo



To: Vicki Chase, Normandeau Associates
25 Nashua Road
Bedford, NH 03301-5022

From: Amy Lamb, NH Natural Heritage Bureau

Date: 10/29/2015 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB15-3455

Town: Farmington

Location: Route 153 over the Cochecho River
Description: Additional impact area for proposed dredge for removal of shoals affecting Army Corps levee. Previously submitted data request NHB15-3315.

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: Please contact NH Fish & Game regarding wildlife concerns.

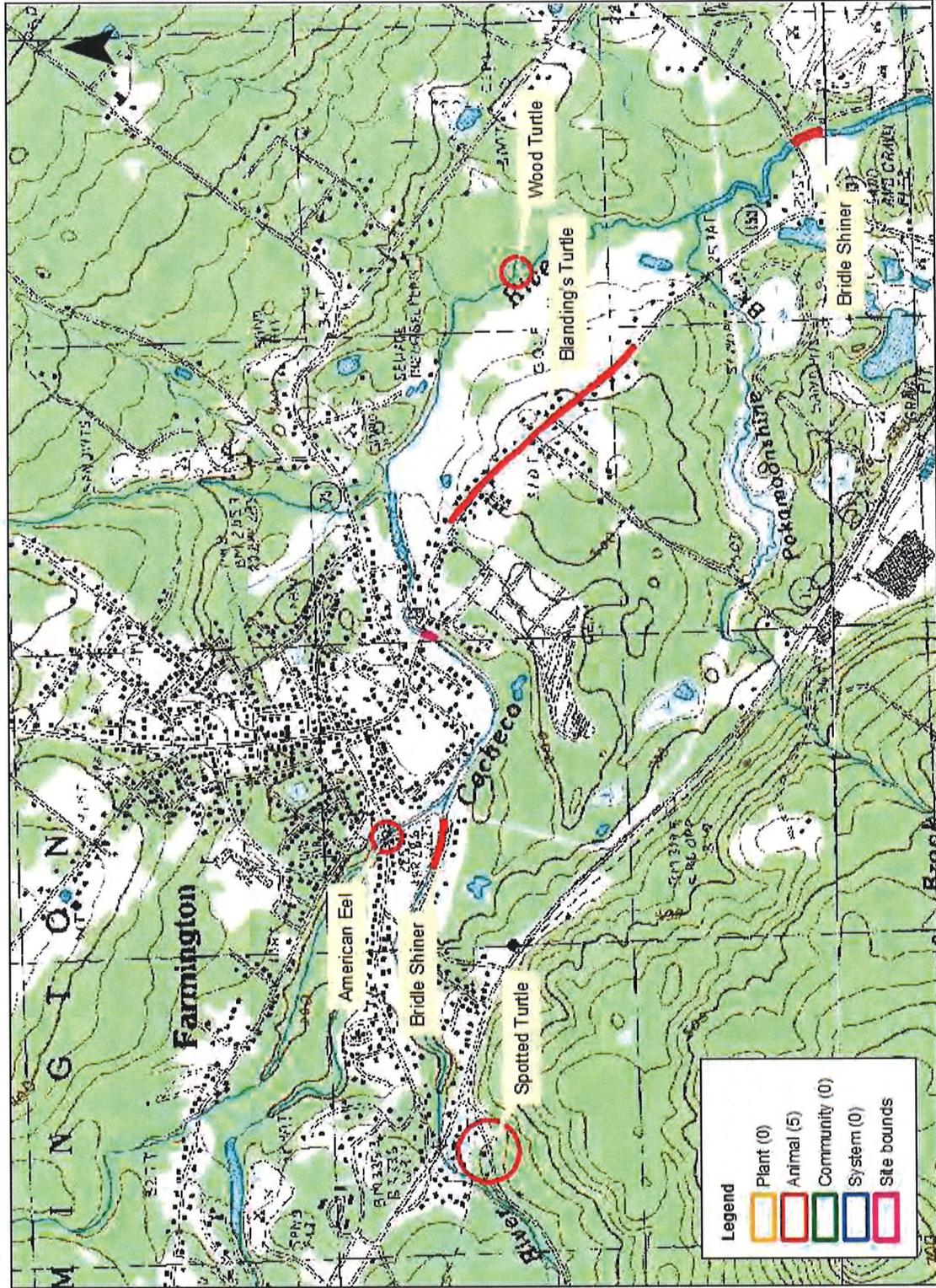
Vertebrate species	State ¹	Federal	Notes
American Eel (<i>Anguilla rostrata</i>)	SC	--	Contact the NH Fish & Game Dept (see below).
Blanding's Turtle (<i>Emydoidea blandingii</i>)	E	--	Contact the NH Fish & Game Dept (see below).
Bridle Shiner (<i>Notropis bifrenatus</i>)	T	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle (<i>Clemmys guttata</i>)	T	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (<i>Glyptemys insculpta</i>)	SC	--	Contact the NH Fish & Game Dept (see below).

¹Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

NHB15-3455



New Hampshire Natural Heritage Bureau - Animal Record

American Eel (*Anguilla rostrata*)**Legal Status**

Federal: Not listed
State: Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 1998: Area 13383: Not enumerated.

General Area:

General Comments:

Management

Comments:

Location

Survey Site Name: Upper Cochecho River
Managed By:

County: Strafford

Town(s): Farmington

Size: 1.9 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 1998: Cochecho River

Dates documented

First reported: 1998

Last reported: 1998

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

Vicki Chase

From: Magee, John <john.magee@wildlife.nh.gov>
Sent: Sunday, October 18, 2015 8:32 PM
To: John Byatt; Vicki Chase; Tuttle, Kim
Cc: Carpenter, Matthew; Nugent, Benjamin; Robert Landry (RLandry@dot.state.nh.us); Ron Kleiner; Donald Lyford (DLyford@dot.state.nh.us); Matt Urban (MUrban@dot.state.nh.us)
Subject: RE: NHB15-3315 replace the Rt 153 Bridge over the Cocheco River Farmington

Hi. I took a very quick look at the emails and the photo with the approx dredge area. If that area is dredged, are there plans to ensure the channel cross section and longitudinal profiles match that of a natural channel of similar dimensions, slope and channel materials? I don't know anything about this site; I suspect the dredged area will fill in again, although that could take many years, or very few.

Thank you,

John

John Magee
Fish Habitat Biologist
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301
p 603-271-2744
f 603-271-5829

From: John Byatt [johnb@cldengineers.com]
Sent: Friday, October 16, 2015 3:23 PM
To: Vicki Chase; Tuttle, Kim
Cc: Carpenter, Matthew; Nugent, Benjamin; Magee, John; Robert Landry (RLandry@dot.state.nh.us); Ron Kleiner; Donald Lyford (DLyford@dot.state.nh.us); Matt Urban (MUrban@dot.state.nh.us)
Subject: RE: NHB15-3315 replace the Rt 153 Bridge over the Cocheco River Farmington

Vicki and All,

Attached is a recent photo with the approximate limits of the shoaling marked on it. I believe the area is approximately 300 feet long and 15 feet wide.

Hope this helps. Sorry for clogging you inbox.

John

From: Vicki Chase [mailto:VChase@normandeau.com]
Sent: Friday, October 16, 2015 2:32 PM
To: Tuttle, Kim
Cc: Carpenter, Matthew; Nugent, Benjamin; Magee, John; John Byatt
Subject: RE: NHB15-3315 replace the Rt 153 Bridge over the Cocheco River Farmington

I don't – John do you have a plan view depicting the proposed dredge that would assist NHF&G in their review? This will be helpful feedback to have before the natural resource meeting.

From: Tuttle, Kim [mailto:Kim.Tuttle@wildlife.nh.gov]
Sent: Friday, October 16, 2015 2:31 PM
To: Vicki Chase
Cc: Carpenter, Matthew; Nugent, Benjamin; Magee, John; John Byatt
Subject: RE: NHB15-3315 replace the Rt 153 Bridge over the Cocheco River Farmington

Thanks Vicki-

Do you have any more details on the proposed dredge? An outline drawn on a google earth map showing extent and location would be helpful.

From: Vicki Chase [mailto:VChase@normandeau.com]
Sent: Friday, October 16, 2015 2:28 PM
To: Tuttle, Kim
Cc: Carpenter, Matthew; Nugent, Benjamin; Magee, John; John Byatt
Subject: RE: NHB15-3315 replace the Rt 153 Bridge over the Cocheco River Farmington

All,

Attached is Mike's email and below is the text from the Categorical Exclusion that was prepared for the document. Reviewing it now, I'm not sure the time of year restrictions were spelled out – it appears that the assumption was that consultation was to happen later. Preferably we would have the restrictions spelled out in the permit, because the contractors like to know about TOY restrictions when they bid projects, not after they have won the job.

NH Fish and Game Department (NHF&G)

Based on input from NMFS that the Cocheco River may have eel migration concerns, NHF&G's Marine Division staff was contacted via telephone on December 17, 2013. NHF&G provided that their concern is the adult eel yearly migration out to sea between October and December. Nighttime work would be a concern as the eels would tend to be held up in holes. NHF&G felt that the new replacement structure, with a natural stream bottom, wouldn't be a concern for passage. They requested that once the contractor's actual construction start date is known, NHDOT consult with NHF&G's Marine Division and NOAA Fisheries to further discuss timing considerations.

From: Tuttle, Kim [mailto:Kim.Tuttle@wildlife.nh.gov]
Sent: Friday, October 16, 2015 12:23 PM
To: Vicki Chase
Cc: Carpenter, Matthew; Nugent, Benjamin; Magee, John
Subject: NHB15-3315 replace the Rt 153 Bridge over the Cocheco River Farmington

Hi Vicki,

Could you send over a Mike Johnson's TOY restriction as we most likely will be concurring with it. Is there a ACOE dredge of a levee associated with this job? I saw this agenda item for the upcoming DOT coordination meeting about a dredge near this location or will that be a separate permit?

10:45 Farmington, X-A001(152), 16146– Replace Bridge carrying NH 153 over Cocheco River (Br No 096/140,Red List)
Need to come to an agreement/understanding on how to proceed with the possible dredge in front of the Towns levee to assist the Town meet ACOE's levee compliance requirements. Want to also discuss DES concerns for the proposed dredge. Want to understand how mitigation plays into the mandated dredge. (location map & AIR).

Environmental concerns: Wetlands, Mitigation Issues, This project was previously reviewed at the Natural Resource Agency Coordination Meetings on the following dates 12/19/2012, 8/21/2013, 8/19/2015.

Thanks,

Kim Tuttle
Certified Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Vicki Chase [mailto:VChase@normandeau.com]
Sent: Friday, October 16, 2015 12:14 PM
To: Tuttle, Kim
Subject: FW: NHB review: NHB15-3315

Hi Kim,

This is a review that we re-upped for a bridge replacement in Farmington. As you can see, the 2012 review (NHB12-3513) did not anticipate any impacts. We have coordinated with Mike Johnson regarding Eel habitat, who has requested TOY restrictions to accommodate migration. The proposed replacement bridge will provide a wider hydraulic opening and a 10' wildlife shelf on the western embankment. (See Farmington Wetland plans and site plan, attached.)

Please let me know if you need additional information to complete your review.

Thanks

VICKI CHASE Environmental Analyst
Normandeau Associates, Inc.
25 Nashua Road, Bedford, NH 03110
603-637-1111(direct) 603-731-7653 (cell)

From: Lamb, Amy [mailto:Amy.Lamb@dred.nh.gov]
Sent: Friday, October 16, 2015 11:46 AM
To: Vicki Chase
Cc: Tuttle, Kim
Subject: NHB review: NHB15-3315

Attached, please find the review we have completed. If your review memo includes potential impacts to plants or natural communities please contact me for further information. If your project had potential impacts to wildlife, please contact NH Fish and Game at the phone number listed on the review.

Best,
Amy

Note: Melissa Coppola is still working part-time on reviews, but I am now the reviewer at NH Natural Heritage.
Please address future correspondence to me at: Amy.Lamb@dred.nh.gov<mailto:Amy.Lamb@dred.nh.gov>

~~~~~  
Amy Lamb  
Ecological Information Specialist  
NH Natural Heritage Bureau  
DRED - Forest & Lands  
172 Pembroke Rd  
Concord, NH 03301  
603-271-2215 ext. 323

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Please consider the environment before printing this e-mail.



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
CONCORD, NH 03301  
PHONE: (603)223-2541 FAX: (603)223-0104  
URL: [www.fws.gov/newengland](http://www.fws.gov/newengland)

Consultation Code: 05E1NE00-2016-SLI-0100

October 14, 2015

Event Code: 05E1NE00-2016-E-00132

Project Name: Farmington 16146

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

## To Whom It May Concern:

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

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

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

**From:** Mike R Johnson - NOAA Federal [<mailto:mike.r.johnson@noaa.gov>]  
**Sent:** Monday, December 16, 2013 4:33 PM  
**To:** Christine Perron  
**Subject:** Re: Farmington 16146, Bridge replacement over Cocheco River, NH Route 153

Christine,

I concur with your determination that this area of the Cocheco River is not accessible by anadromous fish (i.e., Atlantic salmon, river herring, and shad). However, based upon data provided by NH Fish and Game, American eel have been collected in several locations in the Cocheco in the Farmington area. See attached files for details. You can contact John Magee and Cheri Patterson if you have questions about the data.

Although American eel are not a species managed by NMFS (EFH), they are covered under our Fish and Wildlife Coordination Act consultation responsibilities. Because the EFH assessment did not provide details on the construction, I cannot give you specific conservation recommendations for American eel passage. However, as general guidance, I would recommend that the project design consider passage of American eel. American eel elver (upstream) migration can begin around March 15 and last through August 30.

Thanks,

Mike

--

Michael R. Johnson  
Habitat Conservation Division  
NOAA Fisheries  
U.S. Department of Commerce  
Northeast Regional Office  
55 Great Republic Drive  
Gloucester, MA 01930  
978-281-9130  
[mike.r.johnson@noaa.gov](mailto:mike.r.johnson@noaa.gov)

Web [www.nmfs.noaa.gov](http://www.nmfs.noaa.gov)  
Facebook [www.facebook.com/usnoaafisheriesgov](http://www.facebook.com/usnoaafisheriesgov)  
Twitter [www.twitter.com/noaafisheries](http://www.twitter.com/noaafisheries)  
YouTube [www.youtube.com/usnoaafisheriesgov](http://www.youtube.com/usnoaafisheriesgov)

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

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

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

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

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

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

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Farmington 16146

## Official Species List

### Provided by:

New England Ecological Services Field Office

70 COMMERCIAL STREET, SUITE 300

CONCORD, NH 03301

(603) 223-2541

<http://www.fws.gov/newengland>

**Consultation Code:** 05E1NE00-2016-SLI-0100

**Event Code:** 05E1NE00-2016-E-00132

**Project Type:** TRANSPORTATION

**Project Name:** Farmington 16146

**Project Description:** The NH Department of Transportation (NHDOT) proposes to replace bridge 096/140, carrying NH Route 153 over the Cocheco River in Farmington, New Hampshire.

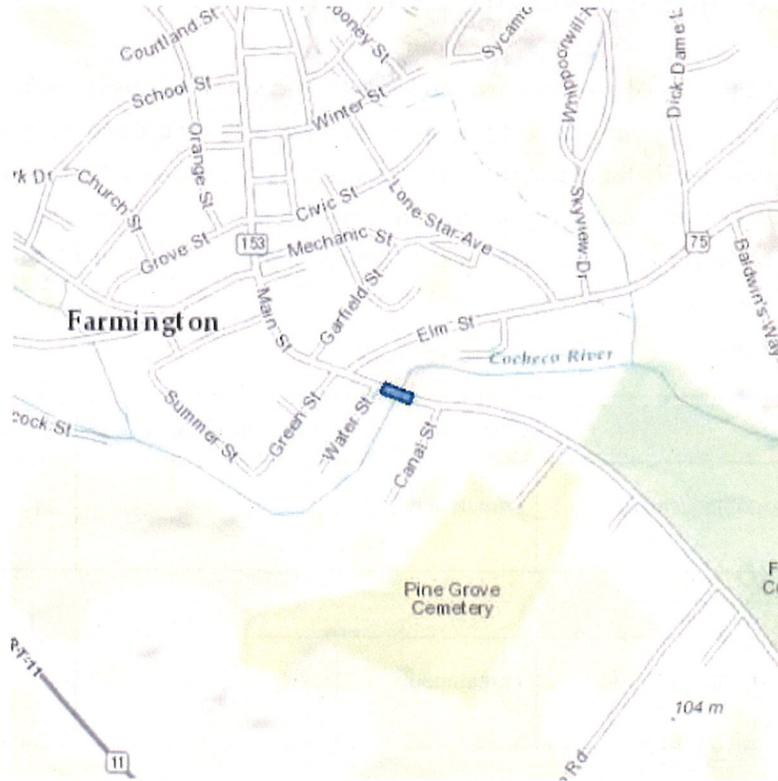
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: Farmington 16146

**Project Location Map:**



**Project Coordinates:** MULTIPOLYGON (((-71.06163024902344 43.38755376565365, -71.06171607971191 43.387397827419605, -71.06098651885986 43.38717951321798, -71.06090068817137 43.38736663972465, -71.06163024902344 43.38755376565365)))

**Project Counties:** Strafford, NH



United States Department of Interior  
Fish and Wildlife Service

Project name: Farmington 16146

## Endangered Species Act Species List

There are a total of 2 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

| Flowering Plants                                          | Status     | Has Critical Habitat | Condition(s) |
|-----------------------------------------------------------|------------|----------------------|--------------|
| Small Whorled pogonia ( <i>Isotria medeoloides</i> )      | Threatened |                      |              |
| <b>Mammals</b>                                            |            |                      |              |
| Northern long-eared Bat ( <i>Myotis septentrionalis</i> ) | Threatened |                      |              |



United States Department of Interior  
Fish and Wildlife Service

Project name: Farmington 16146

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.

**Federal Highway Administration (FHWA) and Federal Railroad Administration (FRA)  
Range-wide Programmatic Informal Consultation for  
Indiana Bat and Northern Long-eared Bat**

Project Submittal Form for FHWA, FRA, and Transportation Agencies  
*Updated June 23, 2015*

In order to use the programmatic informal consultation to fulfill Endangered Species Act consultation requirements, transportation agencies must use this form to submit project-level information for all may affect, not likely to adversely affect (NLAA) determinations to the appropriate U.S. Fish and Wildlife Service (Service) field office prior to project commencement. For more information, see the Standard Operating Procedure for Site Specific Project(s) Submission in the User's Guide.

In submitting this form, the transportation agency ensures that the proposed project(s) adhere to the criteria of the range-wide programmatic informal BA. Upon submittal of this form, the appropriate Service field office may review the site-specific information provided and request additional information. If the applying transportation agency is not notified within 14 calendar days of emailing the Project Submittal Form to the Service field office, it may proceed under the range-wide programmatic informal consultation.

Further instructions on completing the form can be found by hovering your cursor over each text box.

---

1. Date:           October 29, 2015

2. Lead Agency: FHWA

*This refers to the Federal governmental lead action agency initiating consultation; select FHWA or FRA as appropriate*

3. Requesting Agency: NHDOT

a. Name: Matt Urban

b. Title: BOE Wetlands Program Manager

c. Phone: (603) 271-7969

d. Email: MUrban@dot.state.nh.us

4. Consultation Code<sup>1</sup>: 05E1NE00-2016-SLI-0100

5. Project Name(s): Farmington 16146

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<sup>1</sup> Available through IPaC System Official Species List: <https://ecos.fws.gov/ipac/>

6. Project Description:

*Please attach additional documentation or explanatory text if necessary*

The NH Department of Transportation (NHDOT) proposes to replace bridge 096/140, carrying NH Route 153 over the Cocheco River in Farmington, New Hampshire. The rehabilitated structure is anticipated to accommodate one lane of traffic (one in each direction) with 5-foot paved shoulders on both sides and a 5-foot sidewalk on the south side. NHDOT also proposes to dredge an area measuring 2,078 square feet in order to bring the adjacent flood protection levee into compliance with the requirements of the Army Corps of Engineers.

7. Other species from Official Species List:

- ✓ No effect – project(s) are inside the range, but no suitable habitat – see additional information attached

May Affect – see additional information provided for those species (either attached or forthcoming)

8. For Ibat/NLEB, if Applicable, Explain Your No Effect Determination

No effect – project(s) are outside the species' range (*form complete*)

No effect – project(s) are inside the range, but no suitable summer habitat (*form complete*)

- ✓ No effect from maintenance, alteration, or demolition of bridge(s)/structure(s) – results of inspection surveys indicate no signs of bats. (*form complete*)

No effect – other (*see Section 2.2 of the User's Guide – form complete*)

*Otherwise, please continue below.*

# APPENDIX C: Bridge/Structure Inspection Form

## Bridge Inspection Form

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside, from activities above that bore down to the underside, or that could impact expansion joints, from deck removal on bridges, or from structure demolish. Each bridge/structure to be worked on must have a current bridge inspection. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has obtained clearance from the US Fish and Wildlife Service, if required. Additional studies may be undertaken by the DOT to determine what species may be utilizing structures prior to allowing any work to proceed.

|                        |                             |                                                    |
|------------------------|-----------------------------|----------------------------------------------------|
| DOT Project #<br>16146 | Water Body<br>Cocheco River | Date/Time of Inspection<br>August 18, 2015 9:00 AM |
|------------------------|-----------------------------|----------------------------------------------------|

| Route: | County:   | Federal Structure ID: | Bat Indicators |       |           |          | Notes: (e.g., number & species of bats, if known) |
|--------|-----------|-----------------------|----------------|-------|-----------|----------|---------------------------------------------------|
|        |           |                       | Visual         | Sound | Droppings | Staining |                                                   |
| 153    | Strafford |                       |                |       |           |          |                                                   |
|        |           |                       |                |       |           |          |                                                   |
|        |           |                       |                |       |           |          |                                                   |

### Areas Inspected (Check all that apply)

| Bridges                                                               | Culverts/Other Structures                                                |                                | Summary Info (circle all that apply)           |           |               |           |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------|------------------------------------------------|-----------|---------------|-----------|
|                                                                       | Human disturbance or traffic under bridge/in culvert or at the structure | Possible corridors for netting | Evidence of bats using bird nests, if present? | High      | Low           | None      |
| All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep | X                                                                        |                                |                                                | None/poor | Marginal<br>X | excellent |
| All crevices >12" deep & not sealed                                   | X                                                                        |                                |                                                | Yes       | No            |           |
| All guardrails                                                        | X                                                                        |                                |                                                |           | X             |           |
| All expansion joints                                                  | X                                                                        |                                |                                                |           |               |           |

April 17, 2015

|                                                       |   |  |  |  |  |
|-------------------------------------------------------|---|--|--|--|--|
| Spaces between concrete end walls and the bridge deck | X |  |  |  |  |
| Vertical surfaces on concrete I-beams                 | X |  |  |  |  |

Inspection Conducted By: Vicki Chase

Signature(s): 

District Environmental Use Only:

Date Received by District Environmental Manager: \_\_\_\_\_

**DOT Bat Inspection Form Instructions**

1. Inventories must be completed prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Informal Consultation, regardless of whether inventories have been conducted in the past. **Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that structure in subsequent years.**
2. Contractors must complete this form no more than seven (7) business days prior to initiating work at each bridge/structure location. Legible copies of this document must be provided to the District Environmental Manager within two (2) business days of completing the inspection. Failure to submit this information will result in that structure being removed from the planned work schedule.
3. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has obtained clearance from the USFWS, if required. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
4. Estimates of numbers of bats observed should be placed in the Notes column.
5. Any questions should be directed to the District Environmental Manager.



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5087  
<http://www.fws.gov/newengland>

January 7, 2015

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm> (accessed January 2015)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Maria Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman  
Supervisor  
New England Field Office



Project Location



**FEMA FLOOD ZONE**

 A - 100-YEAR FLOODPLAIN, NO BASE FLOOD ELEVATION DETERMINED

 AE - 100-YEAR FLOODPLAIN, BASE FLOOD ELEVATIONS DETERMINED

Date : 10/30/2015  
 Drawn By: vchase  
 Project No: 22605.000

NHDOT 16146  
 FARMINGTON, NEW HAMPSHIRE  
 ROUTE 153 OVER THE COCHECO RIVER

**EXHIBIT H - FEMA FLOODPLAIN**

SCALE: 1:6,000

**NORMANDEAU**  
 environmental consultants  
 25 Nashua Road Bedford, NH 03110  
 (603) 472-5191 www.normandeau.com

NOVEMBER 2015

HEC-RAS River: Cocheco Reach: 100

| Reach | River Sta | Profile         | Plan     | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-------|-----------|-----------------|----------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| 100   | 26902     | 100 Year        | Prop     | 4105.00          | 267.80            | 275.85            | 274.35            | 277.46            | 0.003091              | 10.60              | 507.50               | 94.10             | 0.68         |
| 100   | 26902     | 100 Year        | ExBridge | 4105.00          | 267.80            | 275.86            | 274.36            | 277.48            | 0.003097              | 10.60              | 507.69               | 94.19             | 0.68         |
| 100   | 26902     | 50 Year         | Prop     | 3486.00          | 267.80            | 275.39            | 273.74            | 276.74            | 0.002779              | 9.64               | 465.26               | 90.72             | 0.64         |
| 100   | 26902     | 2.33 Year (OHW) | ExBridge | 1169.00          | 267.80            | 272.38            | 270.94            | 272.90            | 0.002147              | 5.87               | 224.72               | 68.45             | 0.51         |
| 100   | 26902     | 2.33 Year       | Prop     | 1169.00          | 267.80            | 272.36            | 270.93            | 272.88            | 0.002150              | 5.87               | 224.31               | 68.32             | 0.51         |
| 100   | 25740     | 100 Year        | Prop     | 4105.00          | 264.60            | 272.23            | 270.64            | 273.42            | 0.003681              | 9.03               | 724.86               | 512.76            | 0.62         |
| 100   | 25740     | 100 Year        | ExBridge | 4105.00          | 264.60            | 272.25            | 270.64            | 273.44            | 0.003659              | 9.02               | 735.94               | 512.88            | 0.61         |
| 100   | 25740     | 50 Year         | Prop     | 3486.00          | 264.60            | 271.49            | 270.12            | 272.73            | 0.004318              | 9.04               | 416.66               | 87.40             | 0.65         |
| 100   | 25740     | 2.33 Year (OHW) | ExBridge | 1169.00          | 264.60            | 268.43            | 267.68            | 269.06            | 0.005675              | 6.38               | 183.39               | 65.24             | 0.66         |
| 100   | 25740     | 2.33 Year       | Prop     | 1169.00          | 264.60            | 268.45            | 267.68            | 269.07            | 0.005574              | 6.35               | 184.40               | 65.36             | 0.66         |
| 100   | 24761     | 100 Year        | Prop     | 4105.00          | 259.48            | 268.79            | 266.82            | 270.32            | 0.002691              | 10.07              | 440.26               | 66.60             | 0.63         |
| 100   | 24761     | 100 Year        | ExBridge | 4105.00          | 259.48            | 269.99            | 266.82            | 271.11            | 0.001651              | 8.66               | 522.23               | 70.34             | 0.51         |
| 100   | 24761     | 50 Year         | Prop     | 3486.00          | 259.48            | 268.08            | 266.22            | 269.43            | 0.002688              | 9.45               | 393.58               | 64.37             | 0.62         |
| 100   | 24761     | 2.33 Year (OHW) | ExBridge | 1169.00          | 259.48            | 264.56            | 263.42            | 265.18            | 0.002922              | 6.31               | 186.74               | 53.39             | 0.58         |
| 100   | 24761     | 2.33 Year       | Prop     | 1169.00          | 259.48            | 264.53            | 263.42            | 265.16            | 0.003007              | 6.37               | 185.07               | 53.29             | 0.59         |
| 100   | 24731     | 100 Year        | Prop     | 4105.00          | 259.40            | 268.27            | 267.08            | 270.19            | 0.003526              | 11.81              | 437.69               | 71.89             | 0.73         |
| 100   | 24731     | 100 Year        | ExBridge | 4105.00          | 259.40            | 269.98            | 266.10            | 271.05            | 0.001433              | 8.28               | 499.07               | 71.91             | 0.47         |
| 100   | 24731     | 50 Year         | Prop     | 3486.00          | 259.40            | 267.57            | 266.45            | 269.30            | 0.003544              | 11.14              | 387.88               | 70.55             | 0.72         |
| 100   | 24731     | 2.33 Year (OHW) | ExBridge | 1169.00          | 259.40            | 264.63            | 262.77            | 265.06            | 0.001669              | 5.24               | 223.00               | 55.31             | 0.44         |
| 100   | 24731     | 2.33 Year       | Prop     | 1169.00          | 259.40            | 264.22            | 263.32            | 265.04            | 0.003519              | 7.41               | 175.43               | 53.36             | 0.65         |
| 100   | 24704     |                 | Bridge   |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| 100   | 24671     | 100 Year        | Prop     | 4105.00          | 259.30            | 267.04            | 267.04            | 269.84            | 0.006246              | 14.14              | 357.47               | 77.82             | 0.95         |
| 100   | 24671     | 100 Year        | ExBridge | 4105.00          | 259.30            | 268.39            | 266.44            | 270.00            | 0.002874              | 10.22              | 426.04               | 64.36             | 0.64         |
| 100   | 24671     | 50 Year         | Prop     | 3486.00          | 259.30            | 266.39            | 266.39            | 268.96            | 0.006459              | 13.46              | 313.90               | 71.76             | 0.95         |
| 100   | 24671     | 2.33 Year (OHW) | ExBridge | 1169.00          | 259.30            | 263.66            | 262.95            | 264.50            | 0.004756              | 7.35               | 159.05               | 48.47             | 0.72         |
| 100   | 24671     | 2.33 Year       | Prop     | 1169.00          | 259.30            | 263.28            | 263.28            | 264.71            | 0.008427              | 9.71               | 129.75               | 49.81             | 0.97         |
| 100   | 24581     | 100 Year        | Prop     | 4105.00          | 257.82            | 265.80            | 266.14            | 269.16            | 0.007954              | 14.82              | 301.28               | 60.73             | 1.04         |
| 100   | 24581     | 100 Year        | ExBridge | 4105.00          | 257.82            | 266.03            | 266.03            | 269.16            | 0.007058              | 14.29              | 315.93               | 65.83             | 0.98         |
| 100   | 24581     | 50 Year         | Prop     | 3486.00          | 257.82            | 265.03            | 265.40            | 268.22            | 0.008940              | 14.41              | 256.54               | 56.12             | 1.08         |
| 100   | 24581     | 2.33 Year (OHW) | ExBridge | 1169.00          | 257.82            | 262.27            | 262.27            | 263.72            | 0.009735              | 9.67               | 120.91               | 42.12             | 1.01         |
| 100   | 24581     | 2.33 Year       | Prop     | 1169.00          | 257.82            | 262.00            | 262.28            | 263.76            | 0.012811              | 10.64              | 109.84               | 40.76             | 1.14         |
| 100   | 23780     | 100 Year        | Prop     | 4105.00          | 257.20            | 264.52            | 261.24            | 264.83            | 0.000775              | 4.51               | 996.04               | 234.37            | 0.32         |
| 100   | 23780     | 100 Year        | ExBridge | 4105.00          | 257.20            | 264.52            | 261.23            | 264.83            | 0.000775              | 4.51               | 996.08               | 234.38            | 0.32         |
| 100   | 23780     | 50 Year         | Prop     | 3486.00          | 257.20            | 263.98            | 260.90            | 264.25            | 0.000775              | 4.23               | 874.02               | 213.36            | 0.32         |
| 100   | 23780     | 2.33 Year (OHW) | ExBridge | 1169.00          | 257.20            | 261.20            | 260.28            | 261.33            | 0.000775              | 2.84               | 410.95               | 136.66            | 0.29         |
| 100   | 23780     | 2.33 Year       | Prop     | 1169.00          | 257.20            | 261.20            | 260.90            | 261.33            | 0.000775              | 2.84               | 410.95               | 136.66            | 0.29         |

HEC-RAS River: Cochecho Reach: 100

| Reach | River Sta  | Profile         | Plan     | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frictn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|-------|------------|-----------------|----------|-------------------|-------------------|-------------------|---------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| 100   | 24761      | 100 Year        | Prop     | 270.32            | 268.79            | 266.82            | 0.09                | 0.04               | 66.60             | 110.73          | 3990.66            | 3.61             | 10.07              |
| 100   | 24761      | 100 Year        | ExBridge | 271.11            | 269.99            | 266.82            | 0.05                | 0.02               | 70.34             | 148.93          | 3951.14            | 4.93             | 8.66               |
| 100   | 24761      | 50 Year         | Prop     | 269.43            | 268.08            | 266.22            | 0.09                | 0.04               | 64.37             | 75.42           | 3408.15            | 2.43             | 9.45               |
| 100   | 24761      | 2.33 Year (OHW) | ExBridge | 265.18            | 264.56            | 263.42            | 0.06                | 0.06               | 53.39             | 1.71            | 1167.25            | 0.04             | 6.31               |
| 100   | 24761      | 2.33 Year       | Prop     | 265.16            | 264.53            | 263.42            | 0.10                | 0.02               | 53.29             | 1.61            | 1167.36            | 0.04             | 6.37               |
| 100   | 24731      | 100 Year        | Prop     | 270.19            | 268.27            | 267.08            | 0.02                | 0.00               | 71.89             | 364.80          | 3575.64            | 164.56           | 11.81              |
| 100   | 24731      | 100 Year        | ExBridge | 271.05            | 269.98            | 266.10            | 0.01                | 0.21               | 71.91             |                 | 4102.39            | 2.61             | 8.28               |
| 100   | 24731      | 50 Year         | Prop     | 269.30            | 267.57            | 266.45            | 0.02                | 0.00               | 70.55             | 270.14          | 3082.05            | 133.81           | 11.14              |
| 100   | 24731      | 2.33 Year (OHW) | ExBridge | 265.06            | 264.63            | 262.77            | 0.01                | 0.06               | 55.31             |                 | 1168.98            | 0.02             | 5.24               |
| 100   | 24731      | 2.33 Year       | Prop     | 265.04            | 264.22            | 263.32            | 0.02                | 0.00               | 53.36             | 26.04           | 1118.19            | 24.77            | 7.41               |
| 100   | 24704 BR U | 100 Year        | Prop     | 270.18            | 268.21            | 267.10            | 0.16                | 0.03               | 68.50             | 357.78          | 3584.11            | 163.11           | 11.93              |
| 100   | 24704 BR U | 100 Year        | ExBridge | 270.83            | 269.07            | 266.61            | 0.23                | 0.18               | 42.90             |                 | 4105.00            |                  | 10.62              |
| 100   | 24704 BR U | 50 Year         | Prop     | 269.29            | 267.53            | 266.44            | 0.17                | 0.03               | 68.50             | 267.05          | 3086.26            | 132.68           | 11.23              |
| 100   | 24704 BR U | 2.33 Year (OHW) | ExBridge | 264.99            | 264.36            | 262.90            | 0.20                | 0.13               | 42.76             |                 | 1169.00            |                  | 6.33               |
| 100   | 24704 BR U | 2.33 Year       | Prop     | 265.03            | 264.19            | 263.33            | 0.17                | 0.02               | 52.94             | 25.62           | 1118.93            | 24.45            | 7.47               |
| 100   | 24704 BR D | 100 Year        | Prop     | 269.98            | 267.68            | 267.06            | 0.08                | 0.05               | 68.55             | 321.52          | 3626.99            | 156.49           | 12.84              |
| 100   | 24704 BR D | 100 Year        | ExBridge | 270.42            | 268.06            | 266.88            | 0.04                | 0.38               | 42.87             |                 | 4105.00            |                  | 12.34              |
| 100   | 24704 BR D | 50 Year         | Prop     | 269.09            | 267.01            | 266.41            | 0.08                | 0.05               | 68.56             | 234.62          | 3125.28            | 126.10           | 12.14              |
| 100   | 24704 BR D | 2.33 Year (OHW) | ExBridge | 264.66            | 263.62            | 263.10            | 0.06                | 0.10               | 42.74             |                 | 1169.00            |                  | 8.20               |
| 100   | 24704 BR D | 2.33 Year       | Prop     | 264.84            | 263.85            | 263.28            | 0.09                | 0.04               | 50.63             | 20.88           | 1127.85            | 20.27            | 8.12               |
| 100   | 24671      | 100 Year        | Prop     | 269.84            | 267.04            | 267.04            | 0.58                | 0.02               | 77.62             | 276.55          | 3654.89            | 173.56           | 14.14              |
| 100   | 24671      | 100 Year        | ExBridge | 270.00            | 268.39            | 266.44            | 0.39                | 0.46               | 64.36             | 39.59           | 4053.25            | 12.15            | 10.22              |
| 100   | 24671      | 50 Year         | Prop     | 268.96            | 266.39            | 266.39            | 0.61                | 0.02               | 71.76             | 198.02          | 3151.55            | 136.44           | 13.46              |
| 100   | 24671      | 2.33 Year (OHW) | ExBridge | 264.50            | 263.66            | 262.95            | 0.59                | 0.18               | 48.47             |                 | 1169.00            |                  | 7.35               |
| 100   | 24671      | 2.33 Year       | Prop     | 264.71            | 263.28            | 263.28            | 0.81                | 0.00               | 49.81             | 15.38           | 1140.24            | 13.38            | 9.71               |
| 100   | 24581      | 100 Year        | Prop     | 269.16            | 265.80            | 266.14            | 0.63                | 0.06               | 60.73             | 35.26           | 4039.83            | 29.92            | 14.82              |
| 100   | 24581      | 100 Year        | ExBridge | 269.16            | 266.03            | 266.03            | 1.40                | 0.84               | 65.83             | 31.52           | 4039.73            | 33.75            | 14.29              |
| 100   | 24581      | 50 Year         | Prop     | 268.22            | 265.03            | 265.40            | 0.68                | 0.06               | 56.12             | 18.85           | 3451.52            | 15.63            | 14.41              |
| 100   | 24581      | 2.33 Year (OHW) | ExBridge | 263.72            | 262.27            | 262.27            | 1.51                | 0.40               | 42.12             |                 | 1169.00            |                  | 9.67               |
| 100   | 24581      | 2.33 Year       | Prop     | 263.76            | 262.00            | 262.28            | 0.92                | 0.03               | 40.76             |                 | 1169.00            |                  | 10.64              |

HEC-RAS River: Cocheco Reach: 100

| Reach | River Sta | Profile         | Plan     | E.G. US.<br>(ft) | Min El Prs<br>(ft) | BR Open Area<br>(sq ft) | Prs O WS<br>(ft) | Q Total<br>(cfs) | Min El Weir Flow<br>(ft) | Q Weir<br>(cfs) | Delta EG<br>(ft) |
|-------|-----------|-----------------|----------|------------------|--------------------|-------------------------|------------------|------------------|--------------------------|-----------------|------------------|
| 100   | 24704     | 100 Year        | Prop     | 270.19           | 270.00             | 552.26                  |                  | 4105.00          | 273.91                   |                 | 0.35             |
| 100   | 24704     | 100 Year        | ExBridge | 271.05           | 270.50             | 426.81                  |                  | 4105.00          | 272.51                   |                 | 1.05             |
| 100   | 24704     | 50 Year         | Prop     | 269.30           | 270.00             | 552.26                  |                  | 3486.00          | 273.91                   |                 | 0.34             |
| 100   | 24704     | 2.33 Year (OHW) | ExBridge | 265.06           | 270.50             | 426.81                  |                  | 1169.00          | 272.51                   |                 | 0.56             |
| 100   | 24704     | 2.33 Year       | Prop     | 265.04           | 270.00             | 552.26                  |                  | 1169.00          | 273.91                   |                 | 0.33             |



View of NH Route 153 Farmington Bridge – Looking Downstream



View of NH Route 153 Farmington Bridge: Upstream – Looking East



View of NH Route 153 Bridge: Downstream – Looking East



View of Upstream Pier and Rockwall Adjoining with East Abutment



View of Downstream Pier and West Overbank



View of West Abutment – Looking Downstream



View of West Abutment – Looking Upstream



View of Concrete Deck



View of Cochecho River Just Upstream of Bridge



View of Cochecho River after Confluence with Mad River – Looking Upstream



View of Cocheco River before Confluence with Mad River – Looking Downstream



View of Cocheco River Just Downstream of Bridge



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS  
696 VIRGINIA ROAD  
CONCORD, MASSACHUSETTS 01742-2751

June 17, 2014

Engineering/Planning Division  
Geotechnical and Water Resources Branch

Dale Sprague  
Public Works Director  
Town of Farmington  
14 Baldwin Way  
Farmington, New Hampshire 03835

Dear Mr. Sprague:

The routine inspection (RI) of the federally constructed Cocheco River Left Bank Flood Damage Reduction (FDR) System in the town of Farmington, New Hampshire, was conducted on August 27, 2013. Enclosed is the detailed inspection report for the town's records.

The RI is an element of the U.S. Army Corps of Engineers (USACE) Levee Safety Program, the primary objective of which is to assure that levee systems are reliable and do not present unacceptable risks to the public, property, or the environment. The principles that guide the program include the shared responsibility among partners at all levels for levee safety, the adoption of uniform inspection standards and the need for routine and periodic inspections and screening level risk assessments.

The FDR System was evaluated on the basis of several general criteria (e.g. floodwalls, levee embankments) and associated items (e.g. concrete surfaces, rutting). Each of these items is rated "acceptable", "minimally acceptable", or "unacceptable". The system rating is derived from the ratings of the individual system components.

The Cocheco River Left Bank FDR System was rated as Unacceptable. The unacceptable rating means that deficiencies were identified that require immediate attention and may prevent the system from performing as intended during the next significant flood event or have one or more rated items receiving a "unacceptable" rating for at least two consecutive years. This rating is reflective of longstanding problems at the system and a lack of attention to previous identified deficiencies.

As of March 21, 2014 USACE has finalized an interim policy for determining eligibility status of FDR Systems in the Rehabilitation Program (formerly known as the Rehabilitation and Inspection Program) pursuant to Public Law (P.L.) 84-99. Under this

*letter - email  
to Milder  
Crushstone too*

*"variance" apply*

policy the overall system rating will continue to be issued based on the full inspection results as noted in the Inspection Checklist, however the overall system rating shall not be used to determine continuing eligibility in the Rehabilitation Program. Continuing eligibility shall instead be determined by a subset of the rated items in the Inspection Checklist. An Unacceptable rating on any of the individual items in the subset shall result in FDR System being put in Inactive status. As such, it is now possible for a system to:

- Receive an Unacceptable system rating but be determined to be Active in the Rehabilitation Program, or
- Receive a Minimally Acceptable system rating but be determined to be Inactive in the Rehabilitation Program.

For FDR Systems that comprise of more than one segment, all segments must meet the interim eligibility criteria to remain Active in the Rehabilitation Program. Please note that the requirements in the rated items have not been changed. A separate Interim Eligibility checklist with the eligibility criteria is included in the inspection report package.

The Cocheco River Left Bank FDR System has been determined to be Ineligible in the Rehabilitation Program based on the results of this inspection. Please refer to the Interim Eligibility Checklist for the specific items used to make the determination.

The deficiencies that form the basis for the system rating are summarized below. The deficiencies need to be addressed in order for the system to be elevated to acceptable condition. The sponsor must review the report in its entirety to gain a proper appreciation of the required work effort in order to formulate a realistic labor and cost schedule. Please note that the deficiencies reflect the condition of the system at the time of the inspection, and may not reflect work that has been performed in the period between the inspection and the issue date of the report.

- General Items: The sponsor should prepare an EAP, which details responsibilities and procedures for actions to be taken in the event of an actual flood emergency. The EAP should be readily accessible and periodically reviewed and updated to avoid losing valuable information for new personnel and emergency responders. The sponsor should provide USACE with a copy when complete.
- Levee Embankments: Significant vegetation growth (brush, weeds, and trees larger than 2-inches in diameter) are present within the vegetation free zone. Remove all excess vegetative growth in accordance with Engineering Technical Letter (ETL) 1110-2-583. Inspect the riprap slope after the vegetation is removed and provide USACE with results. The minor ruts

7/14/15  
Keith working on it 7/17

created from motor vehicle access on the levee crest should be backfilled and the sod cover re-established. There are a few potential unauthorized building and appurtenant component (propane tank, fence, sheds, etc.) encroachments at the landside toe of the levee. Verify easement limits and review all encroachments identified in the report, single out any of those that impact operations at the FDR, and take necessary steps to resolve any problem encroachments. If re-location is not feasible, perform an engineering evaluation to demonstrate no adverse impacts to the FDR system. Provide USACE with results in the next semi-annual report.

- Floodwall: Vegetation growth (brush, weeds, and trees larger than 2-inches in diameter) are present within the vegetation free zone. Remove all excess vegetative growth in accordance with ETL 1110-2-583. ~~Repair spalling and cracking concrete surfaces of the floodwalls to prevent further damages during freeze-thaw cycles.~~ *Approved Contract 7/7/14 Bryan Beck*
- Interior Drainage System: Significant vegetation growth (brush and weeds) are present within the vegetation free zone. Remove all excess vegetative growth in accordance with ETL 1110-2-583. Inspect the concrete condition at the drainage structures and riprap slopes after vegetation is removed and provide USACE with results. Undertake a video or visual inspection of all drainage pipes and conduits that were constructed as part of the system. Re-inspect these components every five years and provide USACE with results. *Done 1/22/15*
- Flood Damage Reduction Channel: Shoaling and vegetation within the FDR channel should be removed in accordance with ETL 1110-2-583.
- Semi-Annual Reports and O&M Manual: Start submitting semi-annual reports on the operations and maintenance of the system, as per the Operations and Maintenance Manual. The reports should cover maintenance performed, new deficiencies or a worsening of existing deficiencies, emergency operations performed and any training or trial exercises performed during the reporting period. *✓ Now*

Please note that all of the above issues must be corrected before the system can be reinstated to "Active" status and once again be eligible for PL 84-99 assistance. The importance of documenting progress in addressing various maintenance items in the semi-annual reports cannot be overemphasized. We will use the reports in part to gage the progress of your O&M efforts and the information provided may weigh heavily on the future status of the FDR System. The town of Farmington personnel present during the inspection were helpful in providing access to the system; however it is still the

responsibility of the Sponsor to ensure that the system is being operated and maintained properly.

I wish to thank your staff for their cooperation during the inspection. If you have any questions concerning the inspection, or other matters pertaining to the Cocheco River Left Bank FDR system, please call me at (978) 318-8350 or Mike Bachand, NAE District Levee Safety Program Manager, at (978) 318-8075.

Sincerely,



Scott Michalak, P.E.  
Chief, Geotechnical/Water Resources Branch  
Levee Safety Officer

Enclosure

Copy Furnished (with Enclosure):

Mr. Charlie King  
Chairman Farmington Board of Selectmen  
356 Main Street  
Farmington, New Hampshire 03835

Mr. Keith Trefethen  
Town Administrator  
356 Main Street  
Farmington, New Hampshire 03835

(w/o Enclosure)

Mr. Dean Savramis, P.E.  
Director, Mitigation Division, FEMA Region 1  
99 High Street, 6<sup>th</sup> Floor  
Boston, Massachusetts 02110

Senator Jeanne Shaheen, U.S. Senate  
520 Hart SOB  
Washington, DC 20510

Senator Kelly Ayotte, U.S. Senate,  
144 Russell Senate Office Building  
Washington, D.C. 20510

Representative Carol Shea-Porter (1<sup>st</sup> District), U.S. House of Representatives  
1530 Longworth House Office Building  
Washington, DC 20515

Governor Maggie Hassan, Governor of New Hampshire  
Office of the Governor, State House, 107 North Main St.  
Concord, New Hampshire 03301

Steve N. Doyon, PE, Administrator  
DES Dam Bureau  
PO Box 95  
Concord, New Hampshire 03302-0095

Subset of Inspection Items for Rehabilitation Program Eligibility Determination

In order to be eligible, all of the following items must be rated A, M, N/A or Yes.

Item numbers listed below refer to their placement in the Inspection Checklist.

| Rehabilitation Program Eligibility Determination                                                                                  |                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Yes <input checked="" type="checkbox"/><br>No <input type="checkbox"/>                                                            | Public sponsor provided maintenance information per the Public Sponsor Pre- Inspection Form. |
| Yes <input type="checkbox"/><br>No <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/>                            | Non-federal levee system meets Initial Eligibility criteria.                                 |
| If either of the above items is marked "No" the levee system is not eligible.                                                     |                                                                                              |
| Rating                                                                                                                            | Rated Item                                                                                   |
| <b>Levee Embankments</b>                                                                                                          |                                                                                              |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input checked="" type="checkbox"/>                                 | 3. Encroachments                                                                             |
| A <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/>                               | 4. Closure Structures (Stop Log, Earthen Closures, Gates, or Sandbag Closures)               |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 5. Slope Stability                                                                           |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 6. Erosion/ Bank Caving                                                                      |
| A <input type="checkbox"/><br>M <input checked="" type="checkbox"/><br>U <input type="checkbox"/>                                 | 10. Animal Control                                                                           |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input checked="" type="checkbox"/><br>N/A <input type="checkbox"/> | 11. Culverts/Discharge Pipes (This item includes both concrete and corrugated metal pipes.)  |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 14. Underseepage Relief Wells/Toe Drainage Systems                                           |
| <b>Floodwalls</b>                                                                                                                 |                                                                                              |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 2. Encroachments                                                                             |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 3. Closure Structures (Stop Log Closures and Gates)                                          |

*what do we do legally?*

←

PL 84-99 Interim Eligibility Checklist

Levee System/Segment: Cocheco River Left Bank – Farmington, NH

|                                                                                                                                   |                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 5. Tilting, Sliding, or Settlement of Concrete Structures                                                                                                                           |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 6. Foundation of Concrete Structures                                                                                                                                                |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 8. Underseepage Relief Wells/Toe Drainage Systems                                                                                                                                   |
| <b>Interior Drainage System</b>                                                                                                   |                                                                                                                                                                                     |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input checked="" type="checkbox"/><br>N/A <input type="checkbox"/> | 9. Culverts/Discharge Pipes                                                                                                                                                         |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 10. Sluice/Slide Gates                                                                                                                                                              |
| A <input type="checkbox"/><br>M <input checked="" type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input type="checkbox"/> | 11. Flap Gates/Flap Valves/Pinch Valves                                                                                                                                             |
| <b>Pump Stations</b>                                                                                                              |                                                                                                                                                                                     |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                            | 17. Intake and Discharge Pipelines                                                                                                                                                  |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input type="checkbox"/>            | 18. Sluice/Slide Gates                                                                                                                                                              |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input type="checkbox"/>            | 19. Flap Gates/Flap Valves/Pinch Valves                                                                                                                                             |
| <b>Rehabilitation Program Status</b>                                                                                              |                                                                                                                                                                                     |
| Active <input type="checkbox"/>                                                                                                   | System meets all interim eligibility criteria, including having received a rating of A, M, N/A or Yes for all subset items and is therefore eligible for rehabilitation assistance. |
| Inactive <input checked="" type="checkbox"/>                                                                                      | System does not meet interim eligibility requirements.                                                                                                                              |

**Not Applicable**



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS  
696 VIRGINIA ROAD  
CONCORD, MASSACHUSETTS 01742-2751

September 9, 2014

Engineering/Planning Division  
Geotechnical and Water Resources Branch

Dale Sprague  
Public Works Director  
Town of Farmington  
14 Baldwin Way  
Farmington, New Hampshire 03835

Dear Mr. Sprague:

The routine inspection (RI) of the federally constructed Cocheco River Left Bank Flood Damage Reduction (FDR) System in the town of Farmington, New Hampshire, was conducted on July 8, 2014. Enclosed is the detailed inspection report for the town's records.

The RI is an element of the U.S. Army Corps of Engineers (USACE) Levee Safety Program, the primary objective of which is to assure that levee systems are reliable and do not present unacceptable risks to the public, property, or the environment. The principles that guide the program include the shared responsibility among partners at all levels for levee safety, the adoption of uniform inspection standards and the need for routine and periodic inspections and screening level risk assessments.

The FDR System was evaluated on the basis of several general criteria (e.g. floodwalls, levee embankments) and associated items (e.g. concrete surfaces, rutting). Each of these items is rated "acceptable", "minimally acceptable", or "unacceptable". The system rating is derived from the ratings of the individual system components.

The Cocheco River Left Bank FDR System was rated as Unacceptable. The unacceptable rating means that deficiencies were identified that require immediate attention and may prevent the system from performing as intended during the next significant flood event or have one or more rated items receiving a "unacceptable" rating for at least two consecutive years. This rating is reflective of longstanding problems at the system and a lack of attention to previous identified deficiencies.

As of March 21, 2014 USACE has finalized an interim policy for determining eligibility status of FDR Systems in the Rehabilitation Program (formerly known as the Rehabilitation and Inspection Program) pursuant to Public Law (P.L.) 84-99. Under this policy the overall system rating will continue to be issued based on the full inspection

results as noted in the Inspection Checklist, however the overall system rating shall not be used to determine continuing eligibility in the Rehabilitation Program. Continuing eligibility shall instead be determined by a subset of the rated items in the Inspection Checklist. An Unacceptable rating on any of the individual items in the subset shall result in FDR System being put in Inactive status. As such, it is now possible for a system to:

- Receive an Unacceptable system rating but be determined to be Active in the Rehabilitation Program, or
- Receive a Minimally Acceptable system rating but be determined to be Inactive in the Rehabilitation Program.

For FDR Systems that comprise of more than one segment, all segments must meet the interim eligibility criteria to remain Active in the Rehabilitation Program. Please note that the requirements in the rated items have not been changed. A separate Interim Eligibility checklist with the eligibility criteria is included in the inspection report package.

The Cocheco River Left Bank FDR System has been determined to be Ineligible in the Rehabilitation Program based on the results of this inspection. Please refer to the Interim Eligibility Checklist for the specific items used to make the determination.

The deficiencies that form the basis for the system rating are summarized below. The deficiencies need to be addressed in order for the system to be elevated to acceptable condition. The sponsor must review the report in its entirety to gain a proper appreciation of the required work effort in order to formulate a realistic labor and cost schedule. Please note that the deficiencies reflect the condition of the system at the time of the inspection, and may not reflect work that has been performed in the period between the inspection and the issue date of the report.

- General Items: The sponsor should prepare an EAP, which details responsibilities and procedures for actions to be taken in the event of an actual flood emergency. The EAP should be readily accessible and periodically reviewed and updated to avoid losing valuable information for new personnel and emergency responders. The sponsor should provide USACE with a copy when complete.
- Levee Embankments: Significant vegetation growth (brush, weeds, and trees larger than 2-inches in diameter) are present within the vegetation free zone. Remove all excess vegetative growth in accordance with Engineering Technical Letter (ETL) 1110-2-583. Inspect the riprap slope after the vegetation is removed and provide USACE with results. Verify easement

*Send to Peter Lamb.*

*grass only*

limits and remove vegetation within the limits. It is recommended that vegetation be removed 15 feet from the levee toe. The minor ruts created from motor vehicle access on the levee crest should be backfilled and the sod cover re-established. There are a few potential unauthorized building and various (propane tank, fence, sheds, etc.) encroachments at the landside toe of the levee. Review all encroachments within easements identified in the report, single out any of those that impact operations at the FDR, and take necessary steps to resolve any problem encroachments. If re-location is not feasible, perform an engineering evaluation to demonstrate no adverse impacts to the FDR system. Provide USACE with results in the next semi-annual report.

- Floodwall: Vegetation growth (brush, weeds, and trees larger than 2-inches in diameter) are present within the vegetation free zone. Remove all excess vegetative growth in accordance with ETL 1110-2-583. Repair spalling and cracking concrete surfaces of the floodwalls to prevent further damages during freeze-thaw cycles.
- Interior Drainage System: Maintain vegetative growth in accordance with ETL 1110-2-583. Inspect the riprap slopes after vegetation is removed and provide USACE with results. Undertake a video or visual inspection of all drainage pipes and conduits that were constructed as part of the system. Re-inspect these components every five years and provide USACE with results.
- Flood Damage Reduction Channel: Shoaling and vegetation within the FDR channel should be removed in accordance with ETL 1110-2-583.
- Semi-Annual Reports and O&M Manual: Start submitting semi-annual reports on the operations and maintenance of the system, as per the Operations and Maintenance Manual. The reports should cover maintenance performed, new deficiencies or a worsening of existing deficiencies, emergency operations performed and any training or trial exercises performed during the reporting period.

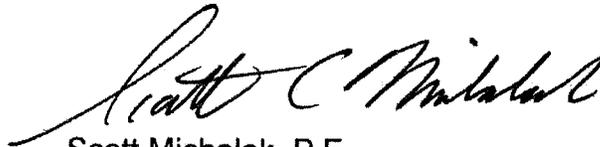
USACE has received and reviewed a copy of the standard deed for easements located along the Flood Control Project and agree the language is acceptable with respect to the requirements in the signed Local Cooperation Agreement to operate and maintain the project. However, USACE recommends obtaining a minimum of 15 feet from the levee toe throughout the project.

Please note that all of the above issues must be corrected before the system can be reinstated to "Active" status and once again be eligible for PL 84-99 assistance. The

importance of documenting progress in addressing various maintenance items in the semi-annual reports cannot be overemphasized. We will use the reports in part to gage the progress of your O&M efforts and the information provided may weigh heavily on the future status of the FDR System. The town of Farmington personnel present during the inspection were helpful in providing access to the system; however it is still the responsibility of the Sponsor to ensure that the system is being operated and maintained properly.

I wish to thank your staff for their cooperation during the inspection. If you have any questions concerning the inspection, or other matters pertaining to the Cocheco River Left Bank FDR system, please call me at (978) 318-8350 or Mike Bachand, NAE District Levee Safety Program Manager, at (978) 318-8075.

Sincerely,



Scott Michalak, P.E.  
Chief, Geotechnical/Water Resources Branch  
Levee Safety Officer

Enclosure

Copy Furnished (with Enclosure):

Mr. Charlie King  
Chairman Farmington Board of Selectmen  
356 Main Street  
Farmington, New Hampshire 03835

Mr. Keith Trefethen  
Town Administrator  
356 Main Street  
Farmington, New Hampshire 03835

(w/o Enclosure)

Mr. Dean Savramis, P.E.  
Director, Mitigation Division, FEMA Region 1  
99 High Street, 6<sup>th</sup> Floor  
Boston, Massachusetts 02110

Senator Jeanne Shaheen, U.S. Senate  
520 Hart SOB  
Washington, DC 20510

Senator Kelly Ayotte, U.S. Senate,  
144 Russell Senate Office Building  
Washington, D.C. 20510

Representative Carol Shea-Porter (1<sup>st</sup> District), U.S. House of Representatives  
1530 Longworth House Office Building  
Washington, DC 20515

Governor Maggie Hassan, Governor of New Hampshire  
Office of the Governor, State House, 107 North Main St.  
Concord, New Hampshire 03301

Steve N. Doyon, PE, Administrator  
DES Dam Bureau  
PO Box 95  
Concord, New Hampshire 03302-0095

Subset of Inspection Items for Rehabilitation Program Eligibility Determination

In order to be eligible, all of the following items must be rated A, M, N/A or Yes.

Item numbers listed below refer to their placement in the Inspection Checklist.

| Rehabilitation Program Eligibility Determination                                                                                  |                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Yes <input checked="" type="checkbox"/><br>No <input type="checkbox"/>                                                            | Public sponsor provided maintenance information per the Public Sponsor Pre- Inspection Form. |
| Yes <input type="checkbox"/><br>No <input checked="" type="checkbox"/><br>N/A <input type="checkbox"/>                            | Non-federal levee system meets Initial Eligibility criteria.                                 |
| If either of the above items is marked "No" the levee system is not eligible.                                                     |                                                                                              |
| Rating                                                                                                                            | Rated Item                                                                                   |
| <b>Levee Embankments</b>                                                                                                          |                                                                                              |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input checked="" type="checkbox"/>                                 | 3. Encroachments                                                                             |
| A <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/>                               | 4. Closure Structures (Stop Log, Earthen Closures, Gates, or Sandbag Closures)               |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 5. Slope Stability                                                                           |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 6. Erosion/ Bank Caving                                                                      |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 10. Animal Control                                                                           |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 11. Culverts/Discharge Pipes (This item includes both concrete and corrugated metal pipes.)  |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 14. Underseepage Relief Wells/Toe Drainage Systems                                           |
| <b>Floodwalls</b>                                                                                                                 |                                                                                              |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 2. Encroachments                                                                             |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 3. Closure Structures (Stop Log Closures and Gates)                                          |

PL 84-99 Interim Eligibility Checklist

Levee System/Segment: Cocheco River Left Bank – Farmington, NH

|                                                                                                                                   |                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 5. Tilting, Sliding, or Settlement of Concrete Structures                                                                                                                           |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                 | 6. Foundation of Concrete Structures                                                                                                                                                |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 8. Underseepage Relief Wells/Toe Drainage Systems                                                                                                                                   |
| <b>Interior Drainage System</b>                                                                                                   |                                                                                                                                                                                     |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input checked="" type="checkbox"/><br>N/A <input type="checkbox"/> | 9. Culverts/Discharge Pipes                                                                                                                                                         |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input checked="" type="checkbox"/> | 10. Sluice/Slide Gates                                                                                                                                                              |
| A <input checked="" type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input type="checkbox"/> | 11. Flap Gates/Flap Valves/Pinch Valves                                                                                                                                             |
| <b>Pump Stations</b>                                                                                                              |                                                                                                                                                                                     |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/>                                            | 17. Intake and Discharge Pipelines                                                                                                                                                  |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input type="checkbox"/>            | 18. Sluice/Slide Gates                                                                                                                                                              |
| A <input type="checkbox"/><br>M <input type="checkbox"/><br>U <input type="checkbox"/><br>N/A <input type="checkbox"/>            | 19. Flap Gates/Flap Valves/Pinch Valves                                                                                                                                             |
| <b>Rehabilitation Program Status</b>                                                                                              |                                                                                                                                                                                     |
| Active <input type="checkbox"/>                                                                                                   | System meets all interim eligibility criteria, including having received a rating of A, M, N/A or Yes for all subset items and is therefore eligible for rehabilitation assistance. |
| Inactive <input checked="" type="checkbox"/>                                                                                      | System does not meet interim eligibility requirements.                                                                                                                              |

Not Applicable

PL 84-99 Interim Eligibility Checklist

Levee System/Segment: Cocheco River Left Bank – Farmington, NH

Comments:



c.c. Jamie Sikora, FHWA  
Christine St. Louis, NHDHR  
Jamie Paine, Normandeau

Bob Landry , NHDOT  
Christine Perron, NHDOT

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**Farmington, X-A001(152), 16146**

The purpose of this meeting was to introduce the group to the project and receive initial feedback and input. Jamie Paine, of Normandeau Associates, provided an overview of the project and JoAnn Fryer, of CLD Consulting Engineers, provided detailed descriptions of the alternatives.

The NHDOT proposes to replace the bridge (State Bridge No. 096/140) that carries NH Route 153 over the Cocheco River, just south of downtown Farmington, NH. The road serves as a major route for vehicles entering the City from the south. This structure, a 48-foot two-span concrete girder bridge with a concrete deck, was built in 1924. The area is fairly urban in nature, with a manufacturing facility, former gas station, a large multi-family structure and several other residential structures nearby.

The Cocheco River at this location is a Designated River and fourth-order stream. There is a floodway through the area with 100 and 500 year floodplains located adjacent to portions of the river. Under a 1950's era Army Corps of Engineers project, the section of Cocheco River located immediately upstream from the project was reconstructed to create a flood levee system. The banks along the northern extent of the river were raised and an overflow gate was installed near the bridge. Along the upstream southern bank, an approximate 80 ft long stonewall exists adjacent to the bridge.

The Natural Heritage Bureau review determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, they do not expect that it will be impacted by the proposed project.

CLD has completed preliminary hydraulic analyses, which indicate a required hydraulic opening of 62.5 feet, maintaining the existing low chord elevation of the bridge as 270.0 with at least 1-ft of freeboard over the 100-year storm. Based upon anticipated requirements to provide wildlife access under the bridge, the recommended clear span is 68.5 feet, providing a 10-ft wildlife platform on the west end of the bridge, above the Q2.33 water surface elevation, providing approximately 6-ft of clearance to the bridge beam low chord. No platform is proposed on the east end, as the abutment location has been proposed to align with the existing 6-ft high retaining wall and addition of a platform above the Q2.33 elevation is not feasible without obstructing the lower flows.

Two alignment alternatives are being considered: Bridge on existing alignment using a temporary bridge on the downstream side; and an off-set alignment to the downstream side with phased construction (single lane only during construction). The first alternative has larger temporary impacts, but smaller permanent impacts (both with regards to environmental and property impacts). A new alignment downstream was also investigated to allow for two lanes of traffic on the existing bridge during construction of the new bridge, however, that has been eliminated due to the significant property impacts to construct.

Based on current preliminary plans, the existing alignment alternative with a temporary bridge would have approximately 1,132 sq ft of permanent and 520 sq ft of temporary bank impacts. It would have approximately 385 sq ft of permanent and 550 sq ft of temporary channel impacts. Once it is removed, the existing center pier would account for approximately 112 sq ft of stream restoration.

The off-set alignment alternative would have approximately 1,604 sq ft of permanent and 400 sq ft of temporary bank impacts. It would also have approximately 505 sq ft of permanent and 725 sq ft of temporary channel impacts. The same stream restoration efforts would occur with removal of the existing center pier (approximately 112 sq ft of area).

Jamie Sikora asked if the bridge is historic and stated that the rehabilitation alternative would need to be reviewed and cost estimates documented. J. Paine replied that this meeting is the first resource agency meeting being attended. A file review was completed at NHDHR for their Request for Project Review form, but a meeting has not been held yet.

Rich Roach asked when the FEMA berm was put in and what condition it is in. J. Fryer explained that a levee system was built upstream in the 1950's to control flooding in undeveloped areas. Berm slopes are roughly 2.5:1 and well vegetated. The system is holding up well as during the last few storms there was no known damage.

Carol Henderson asked for more information on impacts in the stream. J. Fryer explained that there will be channel restoration work in the vicinity of the pier removal and permanent placement of stone for scour protection along the abutments.

No one present had concerns with the proposed wildlife passage shelf beneath the bridge. R. Roach concurred that the project would qualify for coverage under the NH Programmatic General Permit.

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

### **Laconia Municipal Airport, SBG-09-06-2012**

Bill Stack introduced the project, which involves the installation of approximately 15,000 linear feet of perimeter wildlife fence at Laconia Municipal Airport. The fence is based on recommendations in the recently drafted Wildlife Hazard Assessment for Laconia Municipal Airport prepared by USDA Wildlife Services. Approximately 3,300 linear feet of proposed fence would be within wetlands and five stream crossings would be necessary.

B. Stack stated that the preliminary plan design includes the locations of fence posts along the property lines. He noted that the design includes overdriven posts in wetland areas to minimize permanent wetland impacts; concrete footings would be used for upland areas. The USDA Wildlife Services Wildlife Hazard Assessment included a directive for a wildlife fence that consisted of four feet of buried fence material in uplands and two feet of buried fence material in wetlands. The fence will need to cross five streams, and will incorporate drop wire gates over the stream channels. Preliminary phasing of the project and timing of work was discussed. B. Stack noted that in order to try to minimize possible wetland impacts, he has contacted the NHDOT to inquire about the possibility of installing the fence in State right-of-way. (Subsequent to the meeting, a response was received from NHDOT denying the request to place the fence in the controlled access right-of-way.) B. Stack asked for input from the agencies prior to finalizing the design and submitting permit applications.

Rich Roach asked why the fence had to be buried. B. Stack responded that Wildlife Services recommended burial in order to prevent animals from burrowing under the fence to gain access to the airfield.

R. Roach asked if the fence could be moved closer to the runway to reduce wetland impacts. B. Stack responded that there were safety concerns related to maintaining 500 feet from the center line of the runway to clear the protected airspace and avoiding localizer critical area. The project will incorporate feedback from FAA, NHDOT, the environmental agencies, and the airport to keep the new fence on airport property while minimizing wetland impacts. B. Stack noted that master plan had anticipated 4,600 linear feet of new fence, but the project is proposing to install only 3,100 linear feet, which reduces the initial wetland impacts anticipated in the master plan by about 25%.

Carol Henderson commented that the river is heavily fished and that should be taken under consideration. Construction timing should be posted. It was also noted that Mike Johnson at the National Marine Fisheries Service be contacted to determine if an Essential Fish Habitat Assessment will be required.

Jamie Sikora asked if the project had been presented at the Cultural Resource Agency Coordination Meeting. M. Low responded that the project had been presented at three meetings (April 2010, May 2012 and August 2013). J. Sikora asked what the project cost difference would be between a truss and a more conventional structure. M. Low responded that the truss project was approximately \$5 million and the more conventional bridge was approximately \$4.7 million.

Gino Infascelli asked if the existing pier was located on an island. M. Low stated that it was located in an area that is an island depending on river flows.

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

### **Farmington, X-A001(152), 16146**

Jameson Paine provided a brief project update. The NHDOT proposes to replace the bridge (State Bridge No. 096/140) that carries NH Route 153 over the Cocheco River, just south of downtown Farmington. The road serves as a major route for vehicles entering the City from the south. This structure, a 48-foot two-span concrete girder bridge with a concrete deck, was built in 1924. The area is fairly urban in nature, with a manufacturing facility, former gas station, a large multi-family structure and several other residential structures nearby.

The Cocheco River at this location is a Designated River and fourth-order stream. There is a floodway through the area with 100 and 500-year floodplains located adjacent to portions of the river. FP100 is shown on the plans but does not exactly line up with the river as determined from survey. FEMA mapping is generally developed based upon USGS 20-ft contours, therefore is not as detailed as a field survey location. Both the field survey and the FEMA FP100 lines were developed in the NH State Plane coordinate system.

Under a 1950s era Army Corps of Engineers project, the section of Cocheco River located immediately upstream from the project was reconstructed to create a flood levee system. The banks along the northern extent of the river were raised installing a vegetated berm with approximate slope of 2.5H:1V, and an overflow gate was installed near the bridge. Along the upstream southern bank, an approximate 80 ft long stonewall exists adjacent to the bridge. The berm is in fairly good condition and appears to control flooding fairly well in the adjacent low-lying neighborhood.

The Natural Heritage Bureau review determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, they do not expect that it will be impacted by the proposed project.

CLD has completed preliminary hydraulic analyses, which indicate a required hydraulic opening width of 62.5 feet, maintaining the existing low chord elevation of the bridge as 270.0 with at least 1-ft of freeboard over the 100-year storm. Based upon anticipated requirements to provide wildlife access under the bridge, the recommended clear span is 68.5 feet, providing a 10-ft wildlife platform on the west end of the bridge, above the Q2.33 water surface elevation, providing approximately 6-ft of clearance below the bridge beam low chord. No platform is proposed on the east end, as the abutment location has been proposed to align with the existing 6-ft high retaining wall and addition of a platform above the Q2.33 elevation is not feasible without obstructing the lower flows.

The Hydraulic Report prepared by CLD has been submitted to Army Corps and the Town (as the flood control levee project sponsor) for review in conjunction with the flood control project constructed in the 50's. Both agencies have concurred with the report and its findings. During final design, review of the final plans and construction specifications will be required by both the Town and Army Corps through the USC 408 acceptance procedure for regulatory approval.

The recommended alignment as shown on the plans includes replacing the bridge on the existing alignment, using a temporary bridge for traffic control on the downstream side. This was chosen to allow for two-way traffic during construction and to reduce permanent impacts to private properties. Other options investigated included 1) an offset alignment to the downstream side with phased construction (single lane only during construction); and 2) a new alignment downstream to allow for two lanes of traffic on the existing bridge during construction.

The project was presented to the Town Selectmen on January 14, 2013 and at a Public Informational Meeting on April 4, 2013. The Town Selectmen voted to support this alternative, and the majority of residents present at the public meeting in April also supported this alignment, with the request to minimize property impacts from the temporary bridge approach alignment (specifically on the NW quadrant – apartment building). The alignment was subsequently updated to address the concern as shown on the presentation plan.

Preliminary estimates of wetland impacts consist of 1,009 sq ft of Permanent Bank Impacts primarily for the grading and placement of stone fill to accommodate the new bridge; 108 sq ft of Permanent Stream Impacts for the placement of stone fill along the face of the eastern abutment and removal of the pier to below streambed with installation of stone fill in this area; and 5,981 sq ft of Temporary Impacts primarily for the installation of the temporary bridge (temporary abutments will be as close to TOB as practicable) and for erosion control measures within active construction areas.

Rich Roach stated that he expects the project to qualify for coverage under the NH Programmatic General Permit. He asked that we continue coordination with Army Corps staff regarding the flood control structure.

No concerns were raised with the project as proposed.

*This project was previously reviewed on the following date: 10/19/2012.*

### **Keene-Swanzey, A000(458), 10309P**

Ron Grandmason briefly described the proposed construction of the multi-use trail bridge over NH Routes 10/12/101, which is an interim construction project of the Keene-Swanzey 10309 upgrades. This contract would also construct the Northeast Field Mitigation Site (Site #11), located at the intersection of NH Routes 10/12/101 with NH Routes 9/10/12 and NH Route 9 (“T intersection”).

As the Keene-Swanzey wetlands permit has expired, a new permit would need to be obtained. Although the advertising date is currently in March 2021, the project may advance to 2015. The mitigation site was an old corn field that is periodically mowed by DOT. Construction of the mitigation site would convert about 1.8 acres of wetlands to aquatic bed and shrub/scrub wetlands. A preliminary design of the mitigation was developed in 2008 and would provide 26.8 acre-feet of flood storage and create 6.4 acres of wetlands. The flood storage impacts resulting from the planned and constructed interim projects would total about 21 acre-feet. The site was chosen as it is located within the State's right-of-way and is well positioned to provide flood storage in the vicinity of the impacts, which is a concern expressed by the City

project proposes to slipline the pipe with plastic. An approximately 25 feet by 10 feet stone pad will be placed at both the inlet and outlet of the pipe. The stone is intended to be left in place for permanent erosion control. The plastic will have a similar roughness to the existing concrete and is not expected to lead to a significant increase in the velocity of the water. These impacts will be permanent. Some tree removal will also be necessary and temporary impacts are anticipated from water diversion during the work in this area.

S. Micucci mentioned that some of the work may be eligible for coverage under the Routine Roadway Maintenance Notification. The sliplining would not be eligible for the Routine Roadway Maintenance Notification. Jocelyn Degler commented that the catch basin proposed at the 24 inch pipe also would not be eligible. Lori Sommer commented that it would be simpler to include all aspects of the project in one Standard Dredge and Fill Wetland Permit Application.

Carol Henderson inquired about Northern Long-Eared Bats. Rebecca Martin explained that there was an acoustic survey conducted for the project area in the end of July. Coordination with USFWS will be completed as necessary depending on the monitoring results.

J. Degler commented that a catch basin is not ideal in the stream due to connectivity issues. Though the existing situation, two pipes separated, also poses connectivity concerns.

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

### **Farmington, 16146, X-A001(152)**

This is the fourth presentation to the Natural Resource Agency coordination meeting of this project. John Byatt gave a brief overview of the project and recap of the previous discussions. The NHDOT proposes to replace the bridge (Bridge No. 096/140) that carries NH Route 153 over the Cocheco River. The existing structure, a 48-foot two-span concrete girder bridge with a concrete deck, built in 1924. The bridge is considered eligible for the historic register. A levee was constructed along the west bank in the 1950s to alleviate river flooding in downtown Farmington. The Cocheco River at this location is a Designated River and is considered impaired.

The proposed structure will consist of a single 71-foot span bridge with a precast concrete NEXT beam superstructure. The east abutment will remain in the same location as the existing in order to match into an existing stone wall along the river. The west abutment will be moved back approximately 23 feet thereby increasing the hydraulic opening. The roadway over the bridge will be raised approximately 2 feet to also increase the hydraulic opening. The proposed bridge will meet the hydraulic criteria of 1-foot minimum of freeboard above the Q100 elevation. A water main currently located on top of the bridge will be relocated under the bridge. A 10-foot wildlife corridor is proposed along the west bank under the bridge. Ten feet is proposed on one side because a corridor could not be provided on the east side of the bridge, so double the typical width is provided on the west side. Due to temporary impacts to the levee, a DES dam permit and Army Corps Section 408 permit is required. The Town has asked that some dredging be included in the bridge project at the base of the levee as required by the Army Corps. The Department will include this assuming all permitting agencies agree and do not request mitigation for the impacts.

The primary reason for this presentation is to discuss storm water treatment as concerns about a lack of storm water treatment had been raised by DES. Kristen Rutter explained that the Town had requested that storm water be diverted from its existing drainage system to alleviate flooding behind the levee. CLD proposed a new drainage system that tied into the existing system at the western limit of the project and

empties into the river downstream of the bridge. The proposed drainage would divert the stormwater runoff collected by the closed system, but sheet flow runoff would still drain to the existing 30" RCP on the upstream side of the bridge. The proposed closed system will provide a 0.5% slope from the existing closed drainage system through the proposed system to the river. The outlet would only be approximately a foot above the river bed and would require a gate to keep high river flows from entering the system. Surface treatment could not be provided because the drainage pipes and manhole inverts would be approximately 8-feet below grade. However, the catch basins would have deep sumps to provide some treatment.

Lori Sommer asked how much bank impact there would be from the pipe coming through the levee and into the river. J. Byatt and K. Rutter did not know exact numbers but from looking at the plan it would be very little.

Ridge Mauck asked if the impervious area was being increased. J. Byatt replied that it was being increased only a small amount as the existing roadway alignment is being maintained with only minimal widening. R. Mauck asked if a deep open swale could be used. This could not be done as the swale could not go through the levee. Ridge agreed that there did not seem to be any opportunities for treatment at the western side. He did ask if the existing upstream catch basins could be replaced with deep sumps as sumps further upstream would provide more effective treatment than those downstream. Bob Landry said that although replacing catch basins upstream was outside the limit of the project, they will ask the Town if they have plans to upgrade the existing closed drainage system.

On the east side, K. Rutter explained that a swale with a pocket pond was proposed for treatment. Infiltration opportunities were not possible due to poor soils. The swale is approximately 200 feet long.

Mike Hicks asked what area of water gets into the treatment swale. K. Rutter pointed out on the plan the areas where storm water came from.

R. Mauck asked if storm water currently discharges directly into the river. K. Rutter said that it does. She also added that the abutter with the large commercial facility in the NE corner currently has flooding issues and has to pump the water to the river. This abutter also asked for drainage improvements which are being provided as much as possible.

R. Mauck asked if the pocket pond was permanently wet and at least 3-feet deep. K. Rutter replied that it stays wet but was only 1.75 feet deep. Ridge asked if the pond could be made deeper. B. Landry noted that if the pond is made deeper then the swale length would be reduced. B. Landry asked R. Mauck what was more important for treatment, the pond or the swale. R. Mauck replied that it would be good to at least get one to work. M. Hicks asked if the cut line for the pond shown was a constraint. It was responded that the cut could be expanded but would require more right-of-way taking. K. Rutter said CLD would look into increasing the depth of the pond. ***Since the meeting, CLD has evaluated updating the pond to meet the requirements for treatment by making it 3 feet deep and have found that it is feasible. In order to accomplish this, additional impacts and ROW are required.***

Lori Sommer asked about the extents of the temporary bridge impacts. J. Byatt pointed out the bridge and approach roadway area on the plan and noted that it is the intent to have the temporary bridge span from bank to bank.

Amy Lamb asked if an NHB report had been done. J. Byatt replied that one had been done a while ago for the categorical exclusion but another one would need to be done for the wetland permitting.

B. Landry mentioned the Town's request to include some dredging in the project that had been discussed at the previous NRA meeting. M. Hicks said he would look into if the Army Corps was asking the town to perform the dredging. He said he would also provide the contact info of Chris Hatfield who oversees the 408 permit applications. M. Hicks also said a 404 permit was not needed.

*This project was previously reviewed on the following dates:*

### **MHT Runway 35, TBD, Non-Federal**

#### Emergency Runway 35 Localizer Slope Repair

Rich Fixler (Manchester-Boston Regional Airport) introduced the project and discussed the importance of the Emergency Runway 35 Localizer Slope Repair to the safety of the Airport. The localizer is used by planes landing on the main runway at the Airport. It needs a clear surface to function correctly and large animals, such as deer, can disrupt the signal if they stand near the localizer. The existing wildlife fence, which keeps animals out of the localizer area, was damaged and needs to be repaired. This fence is located on a slope near Cohas Brook and there are several washouts along the slope that need to be repaired as well. Rich Fixler noted that if the localizer signal is disrupted four times, the FAA turns off the localizer and needs to go through a re-certification process. This would have a significant impact on the airport, so it is important to get the slope and fence repaired quickly.

Sean Tiney (Jacobs Engineering) provided an overview of the proposed work. The existing slope along Cohas Brook is 1:1 or 1.5:1. The proposed work will involve creating an 8-foot wide bench in the middle of the slope. The fence will be installed on this bench. The remainder of the slope will be 2:1 and will be stabilized with a conservation mix, such as crown vetch. No new riprap is proposed. A shallow swale will be constructed at the top of the slope and water will be piped into a small infiltration field. Two smaller washouts on the slope will also be repaired and vegetated. The fence is being installed in the middle of the slope because it needs to be located below the localizer and would interfere with the signal if it were located at the top of the slope.

Proposed bank disturbance is 3,000 square feet and approximately 300 linear feet. The total area of disturbance is 17,500 square feet. The existing riprap located within the disturbance area will be replaced with vegetation.

Carol Henderson asked what seed mix is proposed and if it will be strong enough to stabilize the slope. Sean Tiney replied that they are waiting for the geotechnical report to determine if additional measures are needed. Carol asked if low shrub vegetation could be considered. Sweet fern was mentioned as a possibility. The vegetation that is used should not be a wildlife attractant.

Michael Hicks asked if there is FAA involvement. Rich Fixler replied that the project is not being funded by FAA.

In regard to wetland mitigation, Lori Sommer said that the balance of riprap removed (linear footage) versus bank impact (linear footage) should be calculated. Mitigation will be required if the new bank impact is more than 200 linear feet.

Jenn Riordan asked if a Shoreland Permit is necessary. The amount of impact beyond the bank is approximately 14,000 square feet. This is a large enough impact to require a Shoreland Permit. Jocelyn Degler mentioned that if an Alteration of Terrain permit is required, no Shoreland Permit is needed. The project will have less than 50,000 square feet of total disturbance, although the threshold for impacts on slopes should be reviewed.

