BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: March 16, 2011
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Dave Smith
Jim Kirouac
Joe Patusky
John Sargent
Jon Evans
Kevin Nyhan
Ron Grandmaison
Samantha Fifield
Stephan Kjellander
Stephen Liakos

EPA
Mark Kern

NHDES
Gino Infascelli
Lori Sommer

NH Fish and Game
Carol Henderson

Town of Dublin
Sterling Abram

Hoyle, Tanner and Assoc.
Edward Weingartner
Jason Lodge

CLD Engineers
John Byatt
Shannon Beaumont

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
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NOTES ON CONFERENCE:

Finalization of the February 16, 2010 Meeting Minutes

The February 16, 2010 meeting minutes were finalized.

Andover, 14679A (non-Federal)

Samantha Fifield began by giving a brief overview of the proposed project. This project involves replacing the existing 48" corrugated metal culvert that carries Mitchell Brook beneath NH Route 11/ US Route 4. The Department proposes to replace the existing structure with a 14' wide by 8' tall concrete box culvert. The invert elevation of the proposed culvert will be depressed 2-feet below the streambed elevation to provide for a natural bottom within the culvert. Scour holes at the inlet and the outlet of the existing pipe will be filled in with natural material to match the surrounding streambed elevations and provide for a more naturalized stream channel. The culvert has been designed to pass a Q50 and will also pass a Q100, assuming that floodwaters from the Blackwater River do not rise enough to cause a backwater condition, resulting in water backing up into and through the culvert. These backwater conditions occur with the existing culvert and will continue to occur under the proposed culvert design due to the flooding dynamics of the surrounding area.

The Department has lowered the proposed roadway elevation by approximately 2 feet since the last time this project was presented to the resource agencies in December of 2008. This drop in the roadway elevation has resulted in decreased wetland impacts. The proposed project is now anticipated to require approximately 3,453 s.f. of permanent wetland impacts and an additional 1,572 s.f. of temporary impacts.

Lori Sommer asked if the project was designed to comply with the new stream crossing rules. Jon Evans indicated that this project was several years old and much of the design work was done prior to the adoption of the stream crossing rules. He indicated that during the early stages of the project, the Department reviewed the culvert and brook and developed the proposed culvert width based upon the 1.2X bankfull width method that was utilized and recommended by DES at the time. In this case 1.2X bankfull width is slightly under 12 feet and the proposed culvert will be 14 feet wide. Given the advanced design of the project the Department does not plan on performing a stream crossing assessment based on the new stream crossing rules. Both Gino Infascelli and Lori Sommer indicated that this was acceptable.

Mark Kern indicated that he had no objections to the Army Corps of Engineers allowing coverage of this project under the NH Programmatic General Permit.

Agency File Numbers: Natural heritage: NHB09-0009
This project was previously reviewed on the following dates: 4/16/2008, 8/20/2008, 12/17/2008.

Andover, X-A001(423), 15901

This project involves the rehabilitation of Bridge No. 050/093, NH Route 11 Bridge over the Blackwater River, in the Town of Andover, NH. The existing bridge is a steel beam structure with a concrete deck supported on concrete abutments and a concrete pier. The existing bridge length consists of two (2) 60' spans. The bridge pier is considered scour critical. The roadway width is approximately 46' with one lane in each direction and shoulders. There is metal W-beam guardrail on each side. The bridge is on the NHDOT Redlist. This bridge was originally constructed in 1959 and aside from minor expansion joint and substructure repairs, little has changed with regard to the structure since its construction. During construction, traffic will be maintained through phased construction. The project design and construction is funded through the NHDOT and FHWA. The estimated construction cost for the proposed improvements is $2,500,000. The following rehabilitation measures are proposed:

- Complete superstructure replacement. Replacement of the existing painted steel stringers with weathering steel rolled beams made composite with the new concrete deck.
- All abutment and pier bearings will be replaced with elastomeric bearings.
- The existing abutments and pier will be maintained and modified only to the extent that is necessary to accommodate the bearings and superstructure.
- The bridge pier will be armored with partially grouted large stone.
- Roadway approach reconstruction is anticipated to be only what is necessary to reconstruct the bridge superstructure, install new approach guardrail and terminal units and accommodate bridge and approach roadway drainage.
- Drainage structures will be required on the east approach of the bridge.

This project has been presented to the NHDOT Cultural Resource Committee. A Phase 1A/1B archaeological investigation has been required and will be performed this year. Hoyle, Tanner & Associates (Hoyle, Tanner) will schedule and coordinate the archaeological work. The Cultural Resource Committee concluded that no historical resources will be affected.

The project area has been flagged by the Natural Heritage Bureau (NHB Number NHB11-0216) for the brook floater. A Phase 1, and possibly Phase 2, mussel survey has been required and will be performed this year. Hoyle, Tanner will schedule and coordinate the mussel survey work.

There aren't any Section 6(f) property use on this project. There aren't any prime wetlands affected by the project. Hoyle, Tanner prepared drafts of the NHDES Standard Dredge and Fill Permit and CSPA Permit. These drafts have been submitted to Kevin Nyhan at the NHDOT Bureau of Environment for review and comment. It is anticipated these permits will be submitted to DES by the end of March 2011.

The project will be advertised in October 2011. It is anticipated that construction will begin in the spring of 2012 and be completed in the fall of 2013.

Jason Lodge (Project Engineer, Hoyle, Tanner) described the project. A handout with a brief project description was distributed. J. Lodge provided a brief history of the existing bridge and described the project.

C. Henderson asked about the stone armament around the pier. The stone layer thickness will be between 2' and 3' thick.

G. Infascelli asked if cofferdams would be required to install the stone armament around the pier. J. Lodge explained steel sheeting cofferdams are proposed to install the stone armament. The cofferdams will be installed in two phases to allow the stone to be placed in a dry condition. These cofferdams are shown in the wetland permit application.

J. Lodge asked if the Categorical Exclusion would be programmatic or non-programmatic now that the NHB flagged the area for the brook floater. It was discussed that this would depend on whether the Phase 1 mussel survey revealed any brook floaters or not. J. Lodge will follow up with Kevin Nyhan to confirm this issue. J. Lodge will follow up with NH Fish & Game when the Phase 1 mussel survey becomes available.

G. Infascelli suggested contacting the dam owner and investigating the use of a drawdown to install the stone armament for the pier. This may allow for the use of sandbag cofferdams instead of steel sheeting which may result in less environmental impact as well as less cost. This will not be considered a stipulation of the project, but rather an idea for Hoyle, Tanner to look into. If a drawdown is used, then NH Fish & Game requires notification two weeks in advance of the drawdown.

The Agency concluded that the project should be covered under the SPGP.

No further action or meetings were required by the Committee.

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

Lisbon, X-A001(172), 16184

This project involves the reconstruction of 1,000 feet of unstable slope on the south side of US Route 302 and the installation of underdrain. Wetland impacts will be greater than 10,000 sq. ft. A review of the project alternatives, wetland impacts and proposed mitigation was discussed.

Jon Evans started the meeting by noting that this project was presented at the February 16, 2011 meeting and that at this meeting the Department would be reviewing project impacts and addressing questions from the previous meeting. Jim Kirouac gave an overview of the project referencing an updated plan depicting the drainage layout for underdrain and cross-pipes. The main focus of the project, which includes reconstructing the failing slope using a 2:1 stone-lined treatment and installing underdrain on the uphill side to minimize ground water flowing through the road base, remains the same. The scope of work, in regards to the roadway itself, has been changed from a pavement rehabilitation effort to a full road reconstruction, which involves removal of the concrete slab within the existing roadway structure. Inherent construction problems with excavating adjacent to the slab to install underdrain and to reconstruct narrow shoulders, as well as trenching through the slab to replace cross drainage may contribute to future maintenance issues. However, this has no added effect on the wetland impacts of the project.

Steeper slopes (1.5H : 1V) were analyzed in regards to minimizing wetland impacts. Jim explained that Materials and Research recommended the 2H:1V slope for slope stability purposes to help compensate for the effect of groundwater flow through the embankment. Due to site constraints, it is not possible to construct the left side underdrain at a depth that would effectively reduce the subsurface water flow through the embankment. As a result, the 1.5H:1V slope would not be stable at this site due to the expected saturation and seepage forces.

As a follow up to Rich Roach's request to backfill the stone slope it was very important to M&R that the stone fill allow free passage of water through the side slope of the embankment. Any materials that prohibit the free passage of water through the stone fill surface layer will increase the pore pressure within the embankment, which would significantly increase the risk for embankment failure.

From the previous meeting the total impacts were reported as just over 12,000 SF. The updated wetland impacts for the project are as follows:

Permanent impacts

- Total for ditch wetlands 1,110 SF (995 SF Ditch relocation at toe of rock slope + 115 SF at pipe inlet under Catterall Rd)
- Total for non-ditch wetlands 11,300 SF
- Total Permanent 12,410 SF

Temporary impacts

- 3,150 SF (Access & staging at toe of rock slope)

As for the mitigation of this project the impacts could not be reduced below 10,000 SF due to the necessity to hold the proposed 2H:1V side slopes for stability purposes. At the bottom of the slope from approximately Sta. 106+50 to Sta. 108+00 there is an existing ditch that will be recreated at the toe of the new 2:1 slope.

Kevin Nyhan asked if the 12,000 SF was for the permanent or temporary wetland impacts and if the 11,000 SF excluded the ditch impacts. As noted above, the previous reported 12,000 SF was a total permanent wetland impact; temporary impacts had not been assessed at that previous meeting. The 11,300 SF was a non-ditch wetland impact.

Mark Kern wanted to know what was on the slope so he could get a better idea of what the slope currently looks like. The existing slope is comprised of trees, bushes, and areas of grass, along with the wetlands areas and a spot area of invasive species. There is currently no rip-rap on the slope, although there are several areas of rock outcrops. It wasn't noted during the meeting but there is currently rip-rap lining the existing ditch at the toe of slope.

Lori Sommer agreed that an in-lieu fee payment would be an acceptable form of mitigation and recommended contacting the conservation committee and/or the town itself to ensure that they are ok with the project.

Mark Kern mentioned that sometimes the temporary wetland impacts and clearing areas are included in the calculation of the in-lieu fee. Mark felt, for this project, those temporary impacts are fairly small numbers and therefore would not need to be included in the in-lieu fee calculation.

* Rich Roach was not in attendance, however, from the previous month's meeting, he was agreeable to allowing coverage under the Programmatic General Permit if payment of the in-lieu fee would satisfy the state's mitigation requirements. EPA and the NH Wetlands Bureau were in concurrence.

Carol Henderson asked if the plan was to get this out to construction and to have the project built this year. Jim Kirouac confirmed this by saying that he hopes to have the project ready to bid by July so construction can start by late summer. He also mentioned that the wetlands permits still needs to be processed and the right-of-way secured prior to advertising.

Agency File Numbers: Natural heritage: NHB10-2498; DES Wetlands: 2010-02887
This project was previously reviewed on the following date: 2/16/2011

Hooksett, 15803 (non-Federal)

This project consists of retrofitting the existing toll plaza along Interstate 93 in Hooksett for Open Road Tolling (ORT). Dave Smith presented the design of the project. Work includes demolition of six existing toll lanes, five islands, five booths and canopy in the center of the plaza to accommodate two ORT lanes on either side of the roadway (NB and SB), and the construction of four toll lanes, an island and canopy on the outside of the plaza. The expansion of the toll plaza requires that the approach roadways be widened, Exit 11 ramps be modified, parking lots on both sides of the plaza be modified, the bridge over Hackett Hill Road be widened, the I-93 bridge over Ramp A-B be rehabilitated and the existing tunnel be extended. The total project extends approximately 5,000 feet north and south of the toll plaza from approximately Cross Road to Pine Street.

The design of the project will perpetuate the existing design in the vicinity of Pinnacle Pond. Given the sensitive nature of this waterbody, all drainage will continue to be directed away from the pond to other outlet areas. Although there are Natural Heritage records associated with the project, NHB has indicated that no impacts are expected. The project area has been cleared for archaeological sensitivity.

There is one vernal pool within the project limits within approximately 30' of the roadway widening area. GZA, the Department's consultant, provided a report, which indicated that this is not a high functioning vernal pool. At the time of the GZA assessment, the water depth in the pool was less than 6" and some wood frog egg masses were drying up and in most years it would exhibit a shortened hydroperiod. Mark Kern indicated that given the proximity of the vernal pool to the roadway it was likely impacted by salt. He did not request any additional information or specific requirements relative to vernal pools.

Wetland impacts for this project total 8,441 sf (3,542 perm; 4,899 temp). There are 657 linear feet of stream/bank impacts. Gino Infascelli indicated that the application package submitted was

inadequate. Plan sheets were not at a readable scale. Kevin Nyhan indicated that he would coordinate with Matt Urban and GZA to provide better application materials.

Mark Kern indicated, as the only Federal partner at the meeting, that EPA would support a Corps PGP for this project.

Agency File Numbers: Natural heritage: NHB09-1623
This project was previously reviewed on the following date: 1/20/2010

Dublin 15684 (non-Federal)

This project consists of the replacement of the bridge at the crossing of Charcoal Road over Charcoal Brook in the Town of Dublin. CLD Engineers will review the project and is seeking input on the proposed environmental impacts.

John Byatt presented the project, design process and environmental issues. The existing bridge is an 18-foot span jack arch bridge built in 1976. The bridge is posted for a 10 ton loading and is on the NHDOT "Red-List". The roadway is frequently overtopped and recently the water came several inches above the bridge's low chord. The roadway is on an s-curve and the existing profile has poor site distance. The project is to be a complete replacement of the bridge with improvements to the roadway.

A hydrologic and hydraulic analysis was performed using NHDOT criteria and it was determined that a 25-foot span precast concrete frame or a 28-foot precast concrete arch was needed. It was noted that contributions from two nearby culverts were neglected. Although the northern culvert was not used in the hydraulic analysis, keeping a culvert was recommended as the roadway would still be overtopped during the 100 year storm and the culvert would provide some relief. As the culvert is in poor condition, replacement with the same size culvert would be included in the project.

Alignment Option No 1 which offsets the road approximately 10 feet was presented. This option straightens the existing s-curve as much as possible but increases wetland impacts by moving the roadway. Option No. 2 was then presented which does not move the existing roadway alignment much but meets design standards by adding a superelevation. John said the Town would pursue Option No. 2.

Two vertical profiles were presented. One option raises the existing road at the bridge approximately 4 feet. This option was meant to improve the existing profile and accommodate a buried structure type. The second option raises the existing road approximately 6 feet to be able to accommodate driven guardrail posts. The higher profile option increases wetland impacts compared to the first and increases costs, as longer wingwalls are needed.

Primarily buried structures such as a precast concrete arch or a precast concrete rigid frame were being evaluated. These options are much more cost effective than bridges at-grade as at-grade bridges require much larger substructures.

John presented a bridge option where the proposed bridge would be placed at the location of the southern bypass culvert. This option reduced the skew of the bridge thus the overall length of the buried structure. This option also reduces wingwall lengths and water diversion costs. The total cost savings for this option was approximately $180,000. John said they had a pre-application meeting with Kirsten Pulkinnen of NHDES who was looking into the viability of re-aligning the stream. John mentioned that Kirsten was looking for input from the attendees of the meeting particularly NH Fish and Game.

The wetland impacts for both bridge location options are greater than 10,000 sf, therefore, wetland mitigation and more coordination with NHDES is required. The hope is that due to the hydraulic and span improvements that the project would be self mitigating.

Comments:

- It was asked if the stream was originally on a different alignment, perhaps similar to the proposed re-alignment, and the stream was re-routed to the existing bridge. John replied that it appeared that way due to the strange bend in the river at the bridge but they had no evidence that the stream was originally re-routed.
- Gino suggested that CLD look at the historic USGS maps as they might show whether the stream had a different course. He stated they are available on the UNH website.
- Mark said he had no problem with the proposed stream re-alignment.
- Lori asked if some of the old channel could not be filled in to provide extra wetland. John replied that they had planned on filling the channel up to the bank but it would probably still be wetland as that area would still frequently flooded.
- Carol asked if the brook was stocked. John did not know so Carol said she would check.
- Lori asked if the embankment slopes could be steepened to get the impacts below 10,000 sf. John said the slopes were already at 2:1 so any steeper would require stoned slopes which they preferred not to do. In addition, Shannon stated that steepening the slopes would require extending the guardrail beyond the limits of the work.
- Mark expressed concern about scour at the downstream outlet of the bridge if it was relocated to the culvert location. Sterling stated that scour is more of a concern now and would also be with the large skew angle of a new bridge at the existing bridge location.

Agency File Numbers: Natural heritage: NHB10-3075
This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.