

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: Monthly SHPO-FHWA-ACOE-NHDOT Cultural Resources Meeting

DATE OF CONFERENCES: July 16, 2015

LOCATION OF CONFERENCE: John O. Morton Building

ATTENDED BY:

NHDOT Joe Adams Sheila Charles Ron Crickard Jillian Edelmann Marc Laurin Pete Stamnas	Edna Feighner FHWA Jamie Sikora CHA Rob Faulkner Samantha Russ	Tom Levins Parsons Brinkerhoff Keith Donington Adam Stockin Smart Associates Jenn Riordan	Architectural & Historic Consultant James Garvin Independent Archaeological Consulting Jacob Tumelaire
NHDHR Laura Black	GM2		

PROJECTS/PRESENTATIONS REVIEWED THIS MONTH:

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Salem-Manchester 10418C, IM-IR-0931(174)

Participants: Keith Donington, Adam Stockin, Parsons Brinkerhoff; James Garvin, Architectural and Historic Bridge Consultant; Joe Adams, Marc Laurin, Pete Stamnas, NHDOT

Continued consultation and update on project status. Focus was on the Robert Prowse Bridge on Ash Street over I-93, including design, phased construction, and actions pertaining to the careful removal and salvage of the bridge components.

Jill Edelmann pointed out that the MOA for the Windham-Londonderry section of I-93 was signed in February 2004 and expires on December 1, 2015. Meeting participants who represent agencies that will sign the revised MOA agreed that the new document should be extended until the end of the project in 2020. Jim Garvin noted that one stipulation of the existing MOA is that DOT “will place an interpretive exhibit about [the bridge’s] design and fabrication at the Salem Rest Area. NHSPO will review and approve the exhibit’s content.” Jim observed that the ultimate reuse of the bridge may suggest a better location for an exhibit interpreting its design and fabrication, and that the location of the exhibit might be left more flexible in the revised MOA.

Jim Garvin reviewed the chronology of the project from the initial design of the Prowse Memorial Bridge as an entry in an international design contest in 1958, through receipt of a design award from AISC for the completed bridge in 1964, to its determination of eligibility for the National Register of Historic Places in 2003, when the bridge was only 41 years old but was found to possess exceptional significance for its design as a steel rigid frame and its fabrication through welding. Along with the Franconia Notch Parkway, the Prowse Bridge was designated one of two features on the Interstate System in New Hampshire to be sequestered from the exemption of the Interstate System from Section 106 review. Garvin noted that a significant planning meeting on the bridge occurred on October 1, 2003, but that no meetings involving NNSHPO had occurred in recent years, so today's meeting represented an introduction of the project to the current SHPO staff.

Adam Stockin described the design of the replacement bridge, which was described in the MOA as "a steel rigid frame structure of compatible design [to the 1962 structure]." The design of the replacement bridge is intended to be a form of mitigation for the removal of the 1962 bridge. Adam proceeded to describe the sequence of construction of the replacement bridge while maintaining traffic on Ash Street on the old bridge, crossing I-93. During Phase IA, beginning in June 2017, all north and south traffic on I-93 will be carried by the widened southbound barrel of the highway while part of the eastern abutment and the eastern end spans of the Prowse Bridge are removed for construction of the replacement bridge. Following removal, the middle spans of the Prowse Bridge will be supported by towers. In April 2019, all north and south traffic will move to the widened northbound barrel of the highway and the remainder of the Prowse Bridge will be removed.

Keith Donington summarized the feasibility of disassembling and removing the Prowse Bridge from an engineering standpoint, noting that the specifications for this job will require the contractor to develop protocols for construction of the temporary support towers and for the careful removal of the five frames of the bridge for later reassembly. The three inner frames of the bridge have bolted field connections at the points of minimal internal stresses in the frames; the two outer frames have welded field connections at corresponding points, and must be cut at the existing welds at these points. The legs of all five frames of the bridge must be cut at their original horizontal shop welds to permit the sections to be moved vertically beneath highway overpasses to the new destination. The pinned feet and legs of each frame will be salvaged, as will the hinges or tie-downs at the east and west abutments.

The diagonal bracing between the frames will be cut, with the original attachment tabs left intact for the connection of new bracing in a future location. Laura Black asked if the original bracing angles could be salvaged. Keith Donington and Pete Stamnas replied that the center-to-center spacing of the frames may be different in re-use, so the original bracing may not be reusable in a reinstallation.

Jamie Sikora inquired about a place of storage for the bridge components if a new use and location are not identified before construction begins in June 2017. Pete Stamnas replied that no storage site has been identified as of July 2015, but DOT will make an earnest effort to identify a new use and location for the bridge and also a place to store of the bridge components, if necessary, until a reuse is identified. Discussion of funding for the relocation of the bridge touched upon the Transportation Alternatives Program (TAP). Jamie Sikora indicated that costs and funding for the

relocation will be influenced by the need to disassemble the bridge with care rather than demolishing it in the usual manner.

Haverhill 16238, X-A001(204)

Participants: Bob Landry, Marc Laurin, NHDOT; Tom Levins, GM2; Jennifer Riordan, Smart Associates, Rich Casella, Historic Documentation Co.

Continued consultation and update on project status in order to determine effects and get input on mitigation.

Tom Levins (GM2 Associates) provided an overview of the project, which involves the replacement of the existing Mill Street bridge over the Ammonoosuc Rail Trail in the Town of Haverhill. The existing bridge was constructed around 1940. The project originally proposed to remove the bridge, but the Town asked that the bridge be replaced. It provides an emergency evacuation route for children at an adjacent school as well as being regularly used by local law enforcement. The residents also use it because of traffic safety issues at the Mill Street/US Route 302 intersection. The bridge is currently State owned, but the Town has agreed to take ownership of the new bridge. The new bridge will be a concrete arch.

This project was presented at a previous NHDOT Cultural Resources Agency Coordination meeting (5/1/2014). Design changes that were made since the previous meeting include changes to the wall layout. Originally proposed to be at 45 degree angles, the walls will now be constructed parallel to the roadway. This layout will minimize the excavation and slope stability during construction.

Jill Edelmann stated that the bridge is individually eligible under Criteria A and C for the design of the bridge and its association with the White Mountain Railroad.

Laura Black asked what the height of the proposed arch will be. Tom Levins replied that the height will meet railroad requirements. The town requested that the new bridge meet railroad height requirements so that the bridge won't need to be reconstructed if the rail line becomes active again. Laura said that this is helpful for reducing impacts to the rail line.

Jamie Sikora discussed Section 4(f) review. There will be an adverse effect to the bridge and to the White Mountain Railroad historic district. These could be processed as individual Section 4(f) determinations or might be able to be combined.

Jill Edelmann asked if effects sheets are needed. Laura Black agreed with DOT that effects sheets should be prepared, noting that preparation of effect sheets for every project enhances both the effect evaluation thought process and transparency of the evaluation.

Rich Casella (Historic Documentation Company) had presented some mitigation ideas to GM2 Associates via email, however Rich was unable to attend this meeting to discuss further. Jill Edelmann will follow-up with Rich to see if he has additional ideas for mitigation.

Potential mitigation options were discussed, including the following:

- Update White Mountain Railroad Area form – this was completed in 1996 and it would be beneficial to have it updated. This rail line is 19.3 miles long.
- Display pieces of the bridge at the local railroad park in Woodsville – NHDOT will contact the organization to discuss this idea, and to see if they have other ideas or needs.
- Documentation of the bridge – DHR will check their documentation files for this particular bridge type.

Laura Black asked if local rail trail groups had been contacted. Jenn Riordan replied that the rail line is the Ammonoosuc Rail Trail and it is used as a snowmobile trail in the winter. The NH Bureau of Trails and the local snowmobile club were contacted. Edna Feighner mentioned that the ATV trail group Ride the Wild may have an interest in the rail trail.

Next Steps:

- Jill Edelmann to contact local railroad park officials.
- Jill Edelmann to check with Rich Casella on possible mitigation options.
- Jill Edelmann will prepare effects sheets.
- Jamie Sikora will look for relevant examples of similar Section 4(f) determinations.
- Laura Black to check DHR's documentation files for similar bridge types.
- Agree on mitigation approach, develop Memorandum of Agreement (MOA)

These next steps can likely be accomplished through email correspondence. Attendance at another NHDOT Cultural Resource Agency meeting is not anticipated.

The project is scheduled for an on-shelf date of 2017.

Cornish –Windsor 25067, X-A003(035)

Participants: Robert Faulkner, Samantha Russ, CHA; Ron Kleiner, Bob Landry, Ron Crickard, NHDOT; Jake Tumelaire, Independent Archaeological Consulting

Initial consultation on the Cornish-Windsor Toll Road Covered Bridge (064/108) over the Connecticut River. The project entails countermeasure installation at the Cornish Toll Road Covered bridge (Bridge Street) over the Connecticut River. CHA provided handouts including one preliminary plan sheet, site photographs and information on Partially Grouted Riprap (PGR). This historic covered bridge received approval for bridge preservation funds to install PGR for scour protection around the bridge supports as part of a National Historic Covered Bridge Preservation application submitted by NHDOT.

Rob Faulkner provided an overview of the project intended to protect this bridge from damage during a flood. This 2 span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier. Temporary access to all three substructure units is proposed from using a state-owned parking area on the downstream southeast quadrant to construct a temporary riverbank bulkhead to accommodate marine barges and boats. Marine access is planned for the western abutment (Vermont side) as well as the pier. NHDOT will contact the

Vermont Agency of Transportation and provide information of the proposed project. Separate permits (NH & VT) are anticipated.

Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill is individual angular stone approximately 2-3' average diameter which is proposed at the pier and at selected bank areas on both sides of the river (see Plan sheet). At the pier the majority of the existing timber crib system is visible/exposed up to 1' upstream of the pier and along the western (Vermont) side of the pier. The timber crib along the east (NH) side of the pier is exposed up to 6' vertically and the channel bed is significantly deeper in this area. Un-grouted stone is proposed to re-establish the existing riverbed and cover the timber cribbing system around the pier. Minimal excavation of sand deposits at the downstream end of the pier will be removed prior to placement of the Class A & B stone fill. Turbidity curtains will be installed and contain the work area prior to any excavation (bed preparation) of the downstream pier nose as shown on the plan sheet.

Partially Grouted Riprap (PGR) is proposed to be installed in front of both abutments. While PGR has not been used widely throughout the United States, it has been used extensively in Europe with great success. R. Faulkner discussed the advantages with PGR including minimizing the impact to the placement area by using less/smaller diameter material (riprap) which requires less channel excavation/preparation and partially grouting the voids between the stones with a special high slump concrete mix. The result is a larger but thinner interlocking stable layer of stones designed to resist flood velocities much higher than with un-grouted stone. PGR was installed by NHDOT bridge maintenance forces in 2011 at a single span bridge in Holderness, NH. The result is a natural boulder laden channel bed that has gravel and sand deposits similar to a native stream bed. For the past 4 years the site is considered stable and the PGR countermeasure is performing well. During the grouting process for the PGR countermeasure, a cofferdam and turbidity curtain barrier are proposed to isolate and contain the work area around the abutments from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting the contractor will be required to monitor for any pH increases noted outside the contained work area. If pH measurements exceed allowable thresholds then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

Jacob Tumelaire from IAC (CHA's subconsultant) noted that the Phase 1A Archeologic Investigation performed indicated that the areas around this bridge have been disturbed during the previous construction of the bridge and adjacent NH Route 12A, further noting that there did not appear to be any areas of sensitivity and that a Phase 1B investigation is not recommended. It was noted that Jim Garvin (not present) reported to NHDHR that additional timber cribbing is evident at approximately the mid-span of each of the two existing spans and that this cribbing was likely the pier foundation remnants of the previous three-span structure of 1825. It was noted that this cribbing has not been monitored or recorded in the past, but was observed by Mr. Garvin during a site visit several years ago. It was agreed that CHA / IAC would attempt to locate the additional cribbing and provide their locations on the plans and avoid impacting them during construction. If they are readily visible and accessible, CHA / IAC will provide additional documentation and recordation. However it was agreed that a detailed investigation of this cribbing was not required. *(Sheila Charles subsequently forwarded the email from J. Garvin which contained some additional information and detail related to the timber cribbing remnants).*

There was a concern over the appearance of the PGR and Laura Black referenced a picture from an FHWA publication of PGR in which the PGR appeared like “play doh” and unnatural. She also referenced photos from the Holderness PGR application and favored its more natural appearance. R. Faulkner noted as a response to an earlier email question from L. Black that provisions can be made to limit the visible grout of the PGR to just below the rock line at the face of the granite abutments.

A question was asked if the State of Vermont had been coordinated with yet. R. Faulkner responded that he thought there had been some coordination, but could not confirm. He further noted that this coordination would be headed up by NHDOT and not CHA.

Based on the presentation and the proposed work, it was agreed that the project will have a “no adverse effect” finding. This finding should be confirmed post-coordination with Vermont and the scheduled public meetings.

Conway 25103, X-A003(039)

Participants: Robert Faulkner, Samantha Russ, CHA; Ron Kleiner, Bob Landry, Ron Crickard, NHDOT; Jake Tumelaire, Independent Archaeological Consulting

Initial consultation on the Conway Covered Bridge (167/067) on East Side Road over the Saco River. The project entails countermeasure installation at the Conway Covered bridge (East Side road over the Saco River). CHA provided handouts including 1 preliminary plan sheet, site photographs and information on Partially Grouted Riprap (PGR). This historic covered bridge received approval for bridge preservation funds to install PGR for scour protection around the bridge supports as part of a National Historic Covered Bridge Preservation application submitted by NHDOT.

Rob Faulkner provided an overview of the project intended to protect this bridge from damage during a flood. This 2 span historic covered bridge is currently coded scour critical and considered vulnerable to erosion/scour during severe flood events. The FHWA mandated Plan of Action (POA) proposed by NHDOT is to install an armoring layer (countermeasures) of material designed to resist erosion around the abutments and pier. Directly upstream of this bridge the Swift River flows into the Saco River.

Two types of countermeasures are proposed at this site. The first, NHDOT Class A & B Stone Fill is individual angular stone approximately 2-3’ average diameter which is proposed at selected bank areas on both sides of the river (see Plan sheet). The second is Partially Grouted Riprap (PGR), which is proposed to be installed in front of both abutments and around the pier. While PGR has not been used widely throughout the United States, it has been used extensively in Europe with great success. CHA discussed the advantages with PGR including minimizing the impact to the placement area by using less/smaller diameter material (riprap) which requires less channel excavation/preparation and partially grouting the voids between the stones with a special high slump concrete mix. The result is a larger but thinner interlocking stable layer of stones designed to resist flood velocities much higher than with un-grouted stone.

PGR was installed by NHDOT bridge maintenance forces in 2011 at a single span bridge in Holderness, NH. The result is a natural appearing boulder laden channel bed that has gravel and sand deposits similar to a native stream bed. For the past 4 years the site is considered stable and the PGR countermeasure is performing well.

During the grouting process for the PGR countermeasure, a cofferdam and turbidity curtain barrier are proposed to isolate and contain the work area around the abutments from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. During grouting the contractor will be required to monitor for any pH increases noted outside the contained work area. If pH measurements exceed allowable thresholds then the grouting operations will be suspended or modified until pH levels fall within an acceptable range.

At the pier there is a considerable amount of existing rounded 1-3' diameter stones visible in the site photos. CHA proposes to use much of the existing material and add supplemental stone to create a uniform layer of stone extending roughly 16 ft. out from the pier face around the perimeter of the pier. Water diversion methods (temporary causeway) will reduce the flow velocities and turbidity curtains will isolate the work area from the river. Excavation, channel bed preparation, stone placement and grouting are all planned to be completed in a non-dewatered environment. As with the abutments, during grouting the contractor will be required to monitor for any pH increases noted outside the contained work area. If pH measurements exceed allowable thresholds then the grouting operations will be suspended or modified until pH levels fall within an acceptable range. Temporary access to all three substructure units is proposed from both sides of the river, however exact access points have not yet been determined or proposed pending additional archeological investigations discussed further below.

Pending the above noted investigation, it is initially envisioned that on the downstream west side, temporary access is would be provided from a private land owner extending upstream along the bank to the west abutment. A temporary causeway is also proposed starting from this area extending out in the river to the upstream end of the pier to allow equipment and materials to the pier. The specific height of this temporary causeway is proposed to be roughly 2 feet above the average flow for the months of August, September, and October. This hydraulic design information (causeway elevation and opening) will be developed as the design efforts advance. The causeway will be removed after construction. No disturbance is currently planned for the privately owned upstream west bank which is covered with riprap.

On the east side of the river, it is initially envisioned that access to the east abutment and upstream bank area will either be from the downstream bank area (via Town of Conway Local Park) or from the upstream private land owner. As with the west side access, the exact locations will be dependent on the findings of the additional archeological investigations. NHDOT will contact the Town of Conway and inquire about a potential access location from the Town Park. In addition, CHA and NHDOT are investigating whether or not the local park is a Section 6(f) of 4(f) resource and the existing ROW information for the project is still pending.

Jacob Tumelaire from IAC (CHA's subconsultant) noted that the Phase 1A Archeological investigation indicated that the areas around this bridge have the potential to contain archeological resources. The NW quadrant is not envisioned to be a viable access point and therefore a Phase 1B investigation will be performed at all three remaining potential access areas. R. Faulkner noted that the SW quadrant had the most favorable topography for access. He further noted that the access along the bank would be accomplished by limited clearing and grubbing and placement and

grading of the stone access road. Once the project was completed, the stone would be removed and topsoil / vegetation would be reestablished.

R. Faulkner asked for input on the height of PGR placement at the pier which has a concrete apron / curtain wall around its perimeter which is about 1-2 ft. high. The PGR could be placed to an elevation that would obscure the concrete curtain wall or placed to a lower elevation leaving the concrete exposed as in its current condition. He further noted that this question would be posed at the upcoming Selectmen's meeting. Laura. Black stated that she would be interested in the public's response and offered no other opinion other than the concrete apron was not a historic feature.

Pending the findings of the Phase 1B investigation, the project would likely have a "No Adverse Effect" finding. CHA will forward the result of the Phase 1B once it was completed.

Submitted by: Sheila Charles and Jill Edlmann, Cultural Resources

<http://www.nh.gov/dot/org/projectdevelopment/environment/units/technicalservices/crmeetings.htm>