

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: June 16, 2021

LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT

Sarah Large
Andrew O'Sullivan
Matt Urban
Mark Hemmerlein
Rebecca Martin
Arin Mills
Samantha Fifield
Maggie Baldwin
Cassandra Burns
Jason Abdulla
Meli Dube
Tim Mallette
Georgie Ravelli
Marc Laurin
Tobey Reynolds
Kathy Corliss
Abraham DeMaio
Jennifer Reczek

Kerry Ryan
Alan Hanscom

EPA

Jeanie Brochi

NHDES

Lori Sommer
Karl Benedict
Cheryl Bondi
Ted Diers
Ann Pelonzi

NHB

Jessica Bouchard

Federal Highway

Jaimie Sikora

The Nature Conservancy

Pete Steckler

LCHIP

Paula Bellemore

Consultants/ Public Participants

Christine Perron
Steve Halloran
Matthew Lundsted
Alec Mann

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NOTES ON CONFERENCE:

Finalize Meeting Minutes

Finalized and approved the May 19, 2021 meeting minutes.

Dummer-Cambridge-Errol, #16304B (X-A004(699))

Christine Perron introduced the project, which consists of a 1.3-mile segment of NH Route 16, a few miles north of the recently constructed project in Dummer (16304A). The proposed project entails shifting NH Route 16 to the west, away from the river, with that shift ranging from 15' to 385'. This alternative results in the least impact to floodplain, minimizes wetland impacts, and reduces vernal pool impacts. This alternative also provides the most sustainable, long-term benefit to the river by improving stormwater treatment and by reducing the risk of bank failures along the roadway slopes.

The project was last discussed at this meeting in June 2020. Since that time, the Department held a successful right-of-way public hearing on August 5, 2020, followed by an LCHIP Board decision to approve the project, and the project is now moving into final design. The project is being discussed today to kick off the permitting coordination that will be required over the next few months, to provide a refresher of the proposed impacts, and to start discussing mitigation requirements. It is anticipated that permit applications will be submitted in late summer or early fall of this year. The project currently has a tentative advertising date of February 2022.

A summary of resource impacts and coordination was provided.

Species of concern

A state-listed plant (common mare's tail) is known to occur near the project. A survey was completed in suitable habitat within the project area in 2020 and the plant was not found. NH Fish & Game has commented that wild brook trout and slimy sculpin likely occur in the two tributaries within the project area. The project is also within the range of two federally listed species: the northern long-eared bat and Canada lynx. The proposed tree clearing falls outside what is covered by the FHWA Programmatic Consultation for northern long-eared bat but the project does comply with the 4(d) rule. Through coordination with NH Fish & Game and US Fish & Wildlife Service, it was determined that the project was not likely to adversely affect Canada lynx.

13 Mile Woods

The project is located within the southern end of the 13 Mile Woods Community Forest, which is owned by the Town of Errol and protected with LCHIP and Forest Legacy easements. The proposed alignment requires the acquisition of approximately 12 acres of the property, which will require mitigation through either new property or monetary compensation. There is potentially about 5 acres along the river where the existing ROW could be transferred to 13 Mile Woods. Coordination with LCHIP and the Forest Legacy Program will be ongoing in the coming weeks.

Wetlands and Surface Waters

The project is adjacent to the Androscoggin River to the east and extensive palustrine wetlands to the west. The proposed alignment will result in approximately 5.3 acres of impacts to wetlands, streams, and the river. There are 14 small impact locations along the river that are needed for drainage pipes. Impacts to the river and wetlands will be described in more detail at a future meeting. The two stream crossings in the project were summarized as follows.

The northern crossing is located at Sta 552+00. The southern crossing is located at Sta 542+50. The northern crossing is located on an unnamed perennial stream and consists of 18" and 15" pipes. The severely undersized crossing has resulted in an impoundment on the upstream side. The proposed structure is a 6' wide by 6' high box culvert embedded one foot. This structure will pass the Q50 flood event. The larger structure would result in lowering the upstream impoundment by approximately 1'. It is anticipated that this would result in increasing the emergent/scrub-shrub marsh located adjacent to the area of open water. The proposed crossing will result in a substantial improvement in aquatic organism passage, hydraulic capacity, and geomorphic compatibility while minimizing impacts to the existing upstream impounded wetland system. It is assumed that this structure would be permitted as a Tier 3 Alternative Design. At the crossing location the roadway will be shifted on a new alignment to the west. The proposed alignment shift and culvert replacement will result in approximately 202 linear feet of channel impacts and 25 linear feet of new channel at the outlet, for a net impact of 177 linear feet.

The southern stream crossing is located on a small, unnamed perennial stream with an approximate bankfull width of 3'. The existing crossing consists of a 24" RCP that outlets directly into the bank of the Androscoggin River. At the location of the existing crossing the stream has a total watershed of approximately 96 acres, making this a Tier 1 stream crossing. However, the crossing is located within the 100-year floodplain, elevating it to a Tier 3 crossing. The design criteria for a Tier 3 stream with a bankfull width of 3 feet would equate to a 7' crossing structure. The proposed structure consists of a 5' wide x 4' high box culvert embedded 1'. The proposed structure passes the Q50, improves aquatic organism passage, capacity, and geomorphic compatibility, and exceeds the Tier 1 design criteria. The proposed alignment shift and culvert replacement will result in 210 linear feet of channel impacts and 118 linear feet of new stream channel constructed at the inlet and outlet, for a net impact of 92 linear feet. Design details that incorporate natural streambed features and plantings along the created channel will be provided at a future meeting.

Vernal Pools

A vernal pool survey was completed in May 2020 and identified six (6) vernal pools within the study area. All of the pools were located within a forested wetland system. The proposed alignment will directly impact two vernal pools and avoid four vernal pools. This area is the segment of proposed alignment that will be shifted furthest west. An alignment that remained closer to the existing roadway would result in impacts to at least three of the vernal pools. Although direct impacts to vernal pools have been minimized, it is recognized that the proposed alignment does create a new barrier between the remaining vernal pools to the east of the new roadway and the upland and wetland habitat to the west. There are two proposed 24" crossing structures located under the proposed roadway west of the vernal pools to serve as equalizer pipes. These could potentially provide some amphibian passage under the roadway. The 24" diameter pipes are the largest pipes that would fit under the roadway at that location.

Floodplains

The project will result in approximately 2656 cubic yards (CY) of fill in the FEMA-mapped 100-year floodplain. Proposed excavation for compensatory flood storage results in the creation of 2319 CY of storage. This leaves only 337 CY of net fill in floodplain along the 1.3-mile project. No impacts to the base flood elevation are anticipated. The project team will be coordinating with the NH Floodplain Manager and the Army Corps.

Most the proposed excavation is along each side of the proposed road near the north end of the project area. This area was chosen to offset floodplain fills because it does not further impact wetlands and is within the proposed right-of-way. The bottom of the storage area is set at an elevation of 1180 (1 ft below the floodplain elevation in this area), which allows the storage area to drain or equilibrate with the existing floodplains, improving connectivity. Other lower proposed floodplain storage depths were considered along the road, but

they would result in permanently ponded water or did not transition to existing floodplain areas. A grassed berm will be left in-place between the proposed floodplain mitigation area and the existing FEMA delineated floodplain area. The proposed and existing floodplains would only be connected at certain locations. The intent of the berm is to limit excavation in order to avoid further impacts to wetlands while still leaving opportunity for the storage areas to be hydrologically connected to the overall floodplain system.

Water Quality

The project area is located within a scenic easement and 13 Mile Woods, so aesthetics are an important consideration and more traditional stormwater treatment practices like detention basins would not fit into the natural landscape. Instead, treatment will be provided via a vegetated buffer that meets all of the requirements of the AOT rules. The proposed project will result in an additional 21,938 sq ft of pavement. The project fully meets AOT requirements to achieve treatment for 53,537 SF of pavement, which is just over twice the area of added pavement. The project is moving the entire 1.3 miles of road away from the river and expanding the riparian buffer. Runoff from areas that do not meet AOT buffer requirements will still be flowing through a vegetated buffer.

Anticipated permits and mitigation

The following permits will be required: Individual Section 404 permit from the Army Corps; Individual Section 401 Water Quality Certification from NHDES; NHDES major impact Wetlands Permit; and NHDES Shoreland Permit.

Anticipated mitigation requirements consist of the following:

- Compensation for the loss of 12 acres of 13 Mile Woods.
- Land preservation (20:1) or in-lieu fee (approximately \$890,000) for approximately 5.3 acres of impacts to wetlands and surface waters.
- Preservation of 10 vernal pools or additional in-lieu fee of approximately \$500,000 for impacts to 2 vernal pools.

Next steps

Over the next few months, meetings will be scheduled with applicable agencies to discuss specific resources and approvals in more detail. The project will also continue to be discussed at future Natural Resource Agency Coordination meetings as appropriate mitigation is determined and wetland impacts are finalized.

A summary of comments and questions from attendees follows:

Paula Bellemore (LCHIP): No specific comments at this time but will be staying in the loop as the project moves forward and mitigation for 13 Mile Woods is discussed.

Karl Benedict (NHDES): Karl noted that requirements for a vegetated buffer were not met along the entire project and asked for more information on stormwater and AOT compliance. Christine said that more details could be provided at a future meeting. Jennifer Reczek noted that the proposed project does meet WQC requirements.

Ted Diers (NHDES): Ted noted his support for moving the road to the west. Relative to Section 401, he asked for additional information on 1) the created stream channels at the two stream crossings and how those

channels would tie into the river; 2) the areas along the project that don't meet the vegetated buffer requirements (specifically, where are these areas, what resources are nearby, and where is the water coming from); and 3) the drainage pipes that outlet into the river (what these pipes carry and what is happening at the outlets). Christine stated that these details could be provided at a future meeting that would be scheduled to specifically discuss water quality.

Lori Sommer (NHDES): Lori provided the following comments.

Would like to see additional details on the two 24" equalizer pipes near the vernal pools and suggested that Scott Jackson at UMass Amherst would be a good resource for creating suitable amphibian crossings.

Could additional compensatory flood storage be provided by removing the existing road bed? Jennifer explained that removal of all of the existing roadbed would result in additional wetland and river impacts.

The federal permit would need to approve the vernal pool impacts. The state permit would approve this as wetland impact.

There should be a future discussion on potential mitigation credit for the vegetated buffer along the river.

She has been discussing the project with Paula at LCHIP. Mitigation discussions would need to be careful about meeting land preservation requirements for 13 Mile Woods and requirements for wetland mitigation. She would like to be present at the future meeting with 13 Mile Woods stakeholders to discuss mitigation.

Jessie Bouchard (NHB): Jessie noted that she reviewed the project file and saw that there was previous correspondence with Amy Lamb at NHB that documents the plant survey. She has no concerns with the project. Christine commented that she would be sending a request for an updated NHB review memo for permitting purposes and Jessie asked that the request include the current NHB file number.

Jamie Sikora (FHWA): No comments at this time.

Jean Brochi (EPA): Jean commented that she appreciates that the proposed alignment minimizes direct impacts to vernal pools. She would like to coordinate with the Army Corps on the functional assessment of the vernal pools. She would also like to be kept in the loop on future water quality and Section 401 coordination.

Pete Steckler (TNC): Pete asked for more information on what the fully compliant stream crossings would be according to the stream crossing rules and asked if wildlife passage could be incorporated. Christine responded that a fully compliant structure at the northern crossing would be a 75' span. She added that the project team would be looking at what could be provided for wildlife passage in the proposed structures but the northern crossing will be permanently flooded and there is no terrestrial habitat to tie into on the upstream side. Jennifer added that the proposed structure does not provide much vertical clearance so more information would be needed on what species would be accommodated. Pete responded that he would like to encourage a discussion about assessing the benefits of creating additional wetland fills to provide wildlife passage under the roadway.

This project has been previously discussed at the 6/19/2019 and 6/17/2020 Monthly Natural Resource Agency Coordination Meetings.

Thornton, #2020-M325-1

Arin Mills, DOT Senior Environmental Manager, presented the project as a District 3 slipline of a 36" RCP and is a state funded and executed project. The culvert carries an un-named stream under US Route 3, a tributary to the Pemigewasset (Pemi) River. Arin explained the stream flows from the north side of Blake Mountain, and flows under I-93 approximately 1/4 mile upstream of the site. From the site it flows approximately 1/4 mile to convergence with Pemigewasset River. The stream was determined to be intermittent Tier 1 as it is not depicted on the USGS topo map or National Hydrography Dataset and based on field collection data.

A map of the aerial imagery with parcel boundaries was shown. The project is located in a rural/residential area, with no conservation lands identified adjacent. Photos were shown of the site, to include inlet/outlet and upstream/downstream of the site. The unique feature of a 'stilling pool' was described at the outlet, where water flows into and meanders around the adjacent parcel lawn. Arin also said the proposed slip line rehab was determined the most economically feasible due to the deep depth of the existing culvert below the roadbed.

Sam Fifield, District 3 Civil Engineer, described the project as rehabilitation of an existing 36" x 70' RCP with a slip line with a plastic pipe to extend the life of the crossing. Sam said slip line was the preferred rehabilitation method as the pipe is below 10' of fill at the inlet and 14' of fill at the outlet. Sam showed preliminary wetland impact plans which depict temporary impacts at both the inlet and outlet of the pipe to allow for installation. Sam described access would be from the Southwest quadrant (inlet), and that the project will not impact the Palustrine wetland in the Northwest quadrant. She also mentioned that no machinery within the stream. A description of the construction sequence will include the installation of erosion control measures, site preparation to include brush clearing/pipe cleaning/prepare framework, installation of slipline pipe and grout installation. If the ground is impacted, then turf will be reestablished. Sam further described the pipe would be lowered down from top of roadway and equipment would push the pipe into place where it would then be sealed with grout. Work will be done during no flow conditions in the late summer/early fall and grass replanting would be conducted as needed. The crossing's hydraulics (existing and proposed) were evaluated using HY-8. The flows used in the analysis were calculated using the Rational Method. Modern rainfall intensities, from the Northeast Regional Climate Center were used to determine peak flows. The calculations show no significant change to either the inlet control depth or outlet velocity with the proposed slip line from the existing conditions. The increased elevation at the inlet, due to the slipline, does not flood out adjacent properties.

Arin further described the results of the environmental review to include the stream as 1st order, a Tier 1 crossing of 32-acre drainage area and no previous permits. The project is on the edge of the Designated River boundary for the Pemi and coordination with the Local Advisory Committee has asked if the project accounted for a warming climate. Arin further said she met with the entire Conservation Commission onsite and did not result in concerns for the project. The NHB review resulted in Wood turtle and Cobblestone tiger beetle. Carol H (NHFG) provided comment ahead of the meeting resulted in a request for roughening of the pipe and a request to eliminate the perch by backwatering as well as request the work be conducted in the summer/early fall. Arin asked that we further this discussion on perch elimination in the agency comments. No concerns for the Tiger beetle. No Priority Resource Areas are within the project area. The project has been determined to be within a FEMA FMIS Map designated 100-year floodplain; however, Sam discussed conducting an evaluation of the River's floodplain elevation using LIDAR contouring, where she determined a 30' vertical difference between the edge of the Pemigewasset River Floodplain elevation and the crossing's invert elevation. Arin described a consistency letter was generated under the 4(d) rule for the Northern long-eared bat. Section 106 evaluation for potential impacts to historic properties has determined no potential to cause effect and documentation will be provided with the application. No SADES or fish data was available for the site.

Sarah L also clarified that she spoke with an adjacent landowner who confirmed that the stream does often dry completely out. She also reiterated the hydraulics show both the proposed and existing pipes will pass both the Q50 and Q100. She also was looking to get confirmation that the stream classification would remain as a Tier 1 under 904.08 despite the location being depicted within the 100-year FEMA Floodplain. Karl B agreed the stream could be classified as a Tier 1 and the application can include a request narrative to downgrade to Tier 1 under 904.08. Karl asked if the pipe had previously been sliplined and Sam confirmed it had not and Karl said that would allow it to be consistent with 904.01. He further asked to confirm the rehab would have no impacts on the upstream properties and Sam confirmed through her hydraulics calculations it would not and Karl asked that be included in the application. Karl further said the backwatering as recommended by NHFG could be accomplished with a weir under 904.01 to address the perch. Sarah commented that the Department feels backwatering was not suitable for this site due to the steep grade of the pipe and the intermittent stream as backwatering would be challenging to meet and the species it would be benefiting. Karl asked if Pete S (TNC) could speak to this from a wildlife perspective since Carol was not in attendance. Pete suggested the possible hand placement of flat stones at the outlet to match the invert elevation would help to improve wildlife passage. Sarah said she has elevations taken in the field that confirm the cascade currently existing and may help with development of plan for placement of stones. Karl agreed this would be a suitable solution to address the perched condition while benefiting wildlife passage.

Lorie S confirmed the installation of rocks at the outlet to address the perch would not trigger mitigation for this Tier 1. Matt U asked for confirmation that the permanent impacts for placement of these stones would be self-mitigating and Karl agreed that mitigation would not be required and can be shown as permanent impacts on the plans. Pete S suggested photos of the stones be provided after construction to showcase the design in improving wildlife passage. Sarah noted that photo would be provided as part of the standard requirement for photos after project completion. Geanie B had no additional comments.

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

Tilton, #2021-M313-1

Arin Mills, NHDTO Senior Environmental Manager, and Samantha Fifield, District 3 Civil Engineer, presented the slope rehabilitation for infrastructure protection. This is a state funded and executed project. Arin provided the location of the project to be adjacent to the US Route 3 and the Winnepesaukee (Winni) River in Tilton. Arin described the flow of the Winni River as flowing from Lake Winnisquam into Silver Lake and from there ~ 3.1 miles to the project location. From the site the river further flows ~ 5.8 miles where it enters the Merrimack River in Franklin. It was noted the entire flow of the Winni River is highly regulated through multiple active dams along its entire stretch, with the Lakeport Dam at the outlet to Lake Winnisquam controlling ~45% of the flow of the entire river. The closest dam is the Lochmere hydro dam located ~ 3/4 miles downstream, with 3 additional remnant dams near the project location.

Sam showed the original construction plans for the existing wall structure, dated 1929. Sam further discussed and depicted both the existing and proposed construction footprint, to include the 24.75' DOT ROW from centerline. She described the existing guardrail is 14.5' offset from centerline and the proposed guardrail replacement will be in the same location. The proposed slope repair and guardrail replacement will be in the 1929 construction limit. Photos were shown of the existing conditions of the stone wall along the Winni River, as well as the deteriorated rail post. The proposed project will construct a 2:1 stone slope with a utility/storm water panel. The utility poles will be relocated 6' behind the face of the new guardrail (approximately 530' long) for safety.

Sam further showed an aerial plan with the existing stone slope, Ordinary High Water(OHW) and Top of Bank delineation data. The causation of the failure is believed to be the dry laid boulder wall/slope has reached its functional life and was not designed to accommodate river flow elevation fluctuations. Storm water sheet flow from the roadway has also contributed to the loss of fine material behind the wall/slope. The velocity and flow of the river has also changed over time, and the natural flow of the river is now directed to the outside of the curve and below an upstream constriction caused by the removed dam. Sam showed a preliminary design plans where a 2:1 stone slope will be constructed of Class A stone from the bottom of the slope to 2' above the OHW. The top layer is comprised of fill covered with Class B stone that will also be covered in turn with humus where turf will be established. A trench is proposed to be constructed at the top of slope which will allow roadway runoff infiltration through stone fill to an underdrain pipe.

A draft wetland impact plan was shown where the proposed work will be within the footprint of the previously constructed wall. A construction sequence will begin with installation of erosion control measures to include a turbidity barrier in the river and compost sock and silt fence along the slopes. Large stones revetments will be placed along the toe of the proposed slope using rounded Class A stone. The remainder of the Class A stone layer will be built behind the revetments. The top portion of the slope will then be built using fill, 2-3' of Class B stone, and covered with 6" layer of humus and vegetated. The utility poles will be relocated 6 to 6.5' behind the guardrail, and the storm water trench will be installed 4' from the edge of pavement. The guardrail will be replaced at an offset of 1.5' from the edge of pavement. A preliminary erosion control plan was shown for the entire work area. Photos of a similar project along the Connecticut River in Walpole were shown where a stone slope was installed with vegetation above.

Arin described the results of the environmental review to include the Winni River as a 5th order stream and possible coverage under the maintenance exemption and/or covered under a wetlands permit for the Shoreland Water Quality Protection Act. No Designated River and a previous permit in 2005 (2005-01476) for bank stabilization in 2 locations. The Winni River is predicted warmwater per the Wildlife Action Plan, and a Natural Heritage Bureau database search (NHB21-1759) had no recorded species. Carol H did provide a comment for suggested plantings between the stones for habitat improvements ahead of the meeting. No Priority Resource Areas (PRA) were identified. The FEMA floodplain data was shown with 100-year floodplain and floodway adjacent, although DOT is developing a HecRas model to show minimal increase in Base Flood Elevation (BFE), which will be provided with the application. The US Fish & Wildlife Service determined potential for Northern long-eared bat and a 4(d) consistency letter was generated. Section 106 review is pending for impacts to the stone wall and will be provided with the application. No Coast Guard jurisdiction. The river does have Essential Fish Habitat designation and coordination will be conducted.

Sarah said the construction plan shows stone in the channel at the toe of the stone wall, and this was confirmed onsite in the field. Karl asked about previous permits and Arin said the only other permit near the project area was for railroad work and Allen confirmed it was for installation of the Railroad crossing and not addressing slope failure work. Karl said the Env-Wt 514 rule design requirements require vegetation and will have vegetation included in the design. He further asked about the design of the stormwater, and asked where that would outlet. Sam said it would outlet along the slope, and also allow some water to infiltrate in the stone and the first flush will be treated in this stone trench. Sam and Allen also mentioned there is a catch basin which captures stormwater and allows treatment. Karl asked for linear feet of impacts and Sam said about 500' along both the channel and bank. Karl recommended alternatives be included in the application such as 1.5:1 slope. Sam said other alternatives were considered, to include the 1.5:1 slope, and both safety considerations for the pole relocation for improved safety and long-term maintenance of the steep slope were factors in the proposed design of 2:1 slope. Karl did suggest planting for naturalized design. Sarah did say herbaceous was proposed at this time.

Lorie did suggest including alternatives, such as moving the roadway away from the river, in the application. Lorie mentioned the impacts in the channel and Sarah did say field conditions did reveal there is stone in the channel existing. Lorie has concerns for channel impacts and mitigation and will need to be confirmed existing stone for mitigation determination. Lorie suggested explanation be included in the application to ensure additional impacts in the river. Sam further described the original plans did show stone in the river, and that the current design doesn't intend to excavate in the river; however, non-excavation of the toe of slope is contingent on geotechnical design review of the proposed slope. The plans provided with the application will show the proposed and existing stone, and Lorie has concerns for mitigation if keying in/excavation of the stone is required for installation of the stones in the river. Lorie said she would like further conversations if it is determined exaction in the river is determined necessary. Pete S and Jeanie B had no additional comments.

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

Troy, #40370

Matt Lundsted opened the presentation identifying that this project was last reviewed at this meeting in February 2020. Discussion of preliminary bridge rehabilitation and replacement concept alternatives presented at that meeting identified issues that required further exploration and resolution including conducting a stream study to confirm development of a proposed bridge clear span consistent with requirements in the Stream Crossing Guidelines (SCG), incorporation of a wildlife passage shelf in the bridge design and also a request for conducting a bat survey. M. Lundsted explained the purpose of the presentation at today's meeting is to present the preferred alternative resulting from the bridge study phase, to provide an update on the bat survey and to present results of the Stream Study and design compatibility with Stream Crossing Guidelines.

Steve Halloran reviewed the location of the bridge carrying NH 12 over the South Branch Ashuelot River near Troy's northern border and reiterated the project purpose is improved public safety and removal of the bridge from the State Bridge Red List. The Type, Size and Location study has recently been completed and a preferred alternative has been identified for further development. A brief review of the current bridge was presented identifying it as a concrete rigid frame structure with a 32-foot span and 30-foot width. The bridge was constructed in 1941 and is in declining structural condition. Various alternatives were considered to rehabilitate or replace the existing bridge. The preferred alternative includes a full bridge replacement with a single clear span between abutments of 50'-0". The preferred alternative includes a prestressed concrete deck beam superstructure widened to the east by 9' compared with the existing bridge, allowing for management of traffic without the need for impacts of construction detour roadways and a temporary bridge through the site.

Matt Lundsted highlighted that the preferred alternative includes a shelf built into the stone armor in front of each abutment to serve as a wildlife passage. Appropriate materials will need to be incorporated at the path surface. The toe of the stone armor slope will not extend into the river beyond the location of existing face of bridge abutment and will not add fill within the floodway.

M. Lundsted identified that a bat survey was conducted in November 2020. No bats or evidence strongly attributed to bats was found. No bat staining or piles of guano were found. Scattered droppings of some kind were found in small weep pipe in the southeast wingwall. A sample of the droppings will be sent for a crush test.

M. Lundsted presented the stream study results. The determination of the location of the stream reference reach was presented. Because of the nearby confluence of the South Branch Ashuelot and Shady/Brandy Brook (a short distance upstream of the bridge location), which have nearly the same size watersheds, the reference reach is closer to the bridge (within 500') than sometimes occurs in these studies (going further upstream would result in smaller bankfull widths because only about half of the total watershed contributes). The Rosgen stream type for the reference reach was explained as well with a "B" Type stream which normally results in a 1.4 bankfull width multiplier to determine clear span compatibility. Due to a changes in topography and geomorphology as the river approaches the bridge (steeper bed slope, steeper valley walls, loss of available floodplain), the river actually begins to behave as a type A or G stream whose bankfull multiplier is <1.4. For these reasons the proposed span of 50' (resulting bankfull multiplier 1.25) makes the proposed crossing compliant with the SCG. M. Lundsted noted that all other proposed features meet the SCG. Finally, it was noted that the existing rail trail crossing bridge with a span of 50' has a naturally occurring 10-12' bank within the span indicating that the river at that width will accommodate the proposed banks.

Comments/Discussion:

K. Benedict indicated the stream study presentation provided a great description of the reference reach and methodology and agrees that the considerations presented are meeting the Stream Crossing Guidelines intent. Matt identified that the information presented would be included as narrative in the wetlands permit documentation.

K. Benedict requested that riprap/armoring design look at the elevations relative to OHW where riprap is required. Can vegetated bank or coir log be incorporated near the top? Maintain as much contiguous natural bank as possible.

L. Sommer requested a post construction report on the wildlife shelf construction and indicated that no mitigation is needed.

P. Steckler asked if the bankfull width at the new crossing is at least meeting upstream bankfull width. M. Lundsted stated that it is with a BFW of greater than 40'.

P. Steckler requested that design of the armoring and wildlife shelf be mindful of a smooth transition and tie in of bank to wildlife shelf. M. Lundsted identified that the existing banks will accommodate a smooth tie in.

This project was previously discussed at the 2/19/2020 Monthly Natural Resource Agency Coordination Meeting.

Hampstead, #43275 (X-A005(067)I)

Tim Mallette gave a brief history on prior inter-agency collaboration involving dam removal and culvert projects completed by the Town of Hampstead and private property owners. He provided a quick overview of FEMA studies, and a Department Bridge project under NH 121. The site constraints include: deep embankment, high traffic counts, pond environment, and the need to find harmony w/ beaver activity. The design constraints point to the advantages of the preferred alternative which will match performance 1:1 with the culvert constructed under Wellington Drive by the Town of Hampstead. Increasing capacity will likely cause flooding of one property downstream adjacent to the Wellington Drive culvert. The structural advantages and extended service life in a pond environment were cited as driving the preferred alternative. Georgie Ravelli explained the hydraulic modelling of the flow split in Upper Johnsons Pond. Her

modelling depicts the importance of finding a balance that is less likely to cause flooding along both flow paths (through Johnsons Pond and toward Sherry Lane and ultimately the 42" RCP under NH 111). She also provided an overview of access and staging area needed at the inlet. More detail on safe access points and the significance of the hydraulic flow split is anticipated in the follow-up meeting.

Discussion / Agency Comments:

Discussion occurred regarding the stream crossing Tier classification based on the watershed characteristics, flow split and pond environment. Concurrence was that the stream crossing is a Tier 3. However, the flow split upstream of the crossing diverts a percent of the runoff toward different crossings.

Karl Benedict, NHDES, opined that stream crossing rules for rehabilitation might not be met which would lead to alternative design. Meli Dube, NHDOT, noted that a formal delineation is pending field work. Based on her site visit the water does flow through the pipe in one direction under the current conditions. However, situations when backwater occurs causes the pipe to equalize water surfaces in Upper & Lower Johnsons Pond. She also mentioned it is a ponded setting and there is no apparent channelized stream. Meli asked Karl if stream crossing rules apply for this situation. She assumed stream crossing rules do not apply for the pond setting, therefore, bankfull width and entrenchment ratio would be difficult to define. Karl, asked if this culvert showed up on USGS as an identified stream. Tim commented that blue lines through the pond should not be relied on for this crossing because the watershed has been regulated and controlled by dams since colonial times.

Karl's initial impression was that this site is a stream crossing and that alternative design would be appropriate. Until the official environmental field review is complete, he recommended a detailed description of the reference reach situation and the site history within the narrative.

Lori Summer, NHDES, stated that mitigation should not be required since a slip line repair of the pipe should not change the existing hydraulics. Karl inquired about impacts to priority resource area. Lori noted that the turtles could kick it into a PRA and then mitigation would be need to be considered.

Pete Steckler, TNC, noted that this crossing falls within a Connect The Coast corridor. He mentioned signage to indicate a wildlife crossing/corridor.

Jean Brochi, USEPA, had no additional comments.

Jessica Bouchard, NHDNCR, noted that the NHB data check has expired. Meli clarified that there was a new one done; however, the new number did not make it into the AIR form. She will put the new NHB number here... The only hit was Blanding's turtle.

Jamie Sikora, had no comments at this stage in project development.

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

Exeter, #43275 (X-A005(063))

Tim Mallette provided an overview of the small watershed (262 acres) and Tier 3 crossing within the context of the adjacent conservation lands and prior connectivity and BMP treatments constructed for the NH 101 East-West corridor safety improvement project in the 1990s (replacement of at grade crossing for NH 85 / NH 101 intersection). The preferred alternative design will use a diffuser at the outlet of the smooth plastic slip line. Outlet weirs are being designed to submerge the diffuser at high flows and to provide a minimum flow depth transition to the wetland channel, thereby improving AOP. Design constraints include: deep embankment, hydraulic capacity, prime wetlands, peak hour commuter traffic,

and the need to meet in-kind hydraulic performance for the FEMA NFIP and peak flow estimates. The invert of the corrugated metal culvert constructed in the 1990s is gone. It has suffered corrosion and abrasion suggesting that more suitable materials are needed for the culvert repair. The HDPE liner combined w/ a diffuser will maintain existing hydraulic capacity with velocity head while lowering the culvert outlet velocity. An added benefit of the preferred alternative is that the HDPE liner is suitable for direct burial and it will have a longer service life than the existing culvert and/or other alternatives. Inlet headwall repair/replacement is planned. Relatively easy access is possible within the Right-of-Way to both sides of the culvert from the northeast side of the crossing as shown on the CAD plan presented. Delineation of the prime wetlands is pending. Estimates for this CRDR project will be recalculated after accurate wetland impacts are determined.

Discussion / Agency Comments:

Karl Benedict, NHDES, addressed the proximity of the temporary access road at the outlet to the abutting conservation land. He noted the potential for temporary and/or permanent impacts to prime wetlands. Karl expressed an interest in how the diffuser will meet Env-Wt 904.01 rules and the determination of priority resources areas. He also mentioned that bringing this project back to the NRACM would be a good idea.

Lori Sommer, NHDES, commented on potential mitigation and Chapter 700 narrative if there are any impacts to wetlands, prime wetlands, or priority resource areas. She noted that Exeter has a dually established 100-foot buffer, and buffer impacts would require mitigation as well. This project should come back to NRACM once final impacts are determined to assess mitigation.

Pete Steckler, TNC, noted that the Resilient Tidal Crossings project led by the NH Coastal Program classifies this crossing as tidal. Pete speculated that this site could be a freshwater tidal system based on what he saw from pictures in the PowerPoint (water stains in pipe and the transition from vegetation to muddy substrate on the downstream side). He stated that additional coordination and evaluation should happen. Tim asserted that there is no normal tidal activity at this location; however, he suggested further discussion with Kevin Lucey. This crossing is within the Connect The Coast corridor between the Squamscott River and Exeter town forest.

Jean Brochi, USEPA, had no comments.

Jessica Bouchard, NHDNCR, had no comments.

Jamie Sikora, had no comments at this stage in project development.

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

Ossipee, #41251 (X-A004(573))

Kathy Corliss provided some background on the project, including that the project is 2.3 miles long, begins just north of Polly's Crossing Road and ends south of the intersection with Route 16B. K. Corliss reviewed aerial plans of the project area from south to north and described the resources along the project area, including: conservation land, wetland areas, a cemetery, the Ossipee Scenic Outlook, and the Milliken Boulder. K. Corliss also pointed out the truck lane at the Mount Shaw Road intersection.

K. Corliss explained that the purpose of the project is pavement rehabilitation to support future preservation treatments and drainage upgrades to protect the investment. The project also proposes to convert the existing truck lane at Mount Shaw Road to a two-way left turn lane (TWLTL) to address safety issues identified in a 2016 Road Safety Audit.

K. Corliss described some of the problems that exist with this section of roadway, the major issue being that the road was built as a 20-foot-wide concrete slab road in 1932. Asphalt has been used to widen the road to two 12-foot travel lanes with variable width shoulders; a truck lane was added in the center portion of the project in the 1980's, but the concrete slab was never removed. There is about 7 inches of pavement over the concrete slab, but cracks have developed along the edges of the slab. These cracks create depressions with water ponding in the wheel paths. Frequent maintenance is needed for potholes and the high traffic volumes make this difficult and dangerous. K. Corliss explained that there have been 54 crashes in the project area between 2009 and 2018 and 2 fatalities at Mount Shaw Road. K. Corliss noted that the original cast iron culverts have been extended with aluminum and the joints are failing.

K. Corliss shared that a public hearing is not anticipated for the project, but a public informational meeting is planned for the summer of 2021 with advertising intended in February 2022.

K. Corliss reviewed the 3 alternatives that were being considered for the project: no build, a 3-inch mill and overlay, and full box reconstruction. Full box reconstruction is the preferred alternative because it offers a more permanent solution to the problems in the project area. A full box reconstruction would also reduce future maintenance needs on a very busy roadway. The full box reconstruction would result in two 12-foot travel lanes with 4 foot shoulders and a 6-foot ditch. K. Corliss showed the full box reconstruction typical section and explained that it is similar to the existing conditions. Due to heavy traffic during construction the plan is to maintain two lanes of traffic during peak travel season. Temporary widening may be necessary in order to maintain two lanes of traffic on NH 16 during peak travel season; further coordination with construction is required and no additional wetland impacts are anticipated from the widening.

K. Corliss reviewed the wetlands within the project area and explained that there are 2 ephemeral streams and one intermittent (Tier 1) stream in the project area. She explained that the 30-inch culvert carrying the intermittent stream is intended to be replaced with either one 36-inch pipe or twin 36 inch pipes. The size of the pipe is restricted by a water main. There is no reported flooding in this location.

K. Corliss showed the preliminary wetland impacts and noted that impacts were minimized to the extent practicable by reducing fill slope grades. K. Corliss reviewed each wetland where impacts are proposed and showed plans and photos.

Rebecca Martin reviewed the other natural resources in the project area. There are two federally listed species that were listed on the IPaC species list, northern long eared bat (NLEB) and small whorled pogonia. R. Martin explained that the project intends to utilize the FHWA Range-wide Bat Programmatic and is expected to be a likely to adversely affect (LAA) project as TOY restricted clearing is not intended. R. Martin shared that two potentially suitable habitat areas were identified by the consultant completing the wetland delineation. Both areas were surveyed by R. Martin and no small whorled pogonia plants were found. Coordination with USFWS concurred that the plant is not likely to be present in the project area, so a no effect determination was made for small whorled pogonia. State listed: northern black racer and state special concern: wood turtle are on the projects NHB report. Coordination has been completed with NH Fish and Game Department and recommendations are being incorporated into the project. Recommendations included: wildlife-friendly erosion control materials, replacing structures with same size or larger CMPs or RCPs, and reporting northern black racers or nesting wood or Blanding's turtles found in the project area.

R. Martin explained that the consultant did not find any peatlands during the wetland delineation. She inquired about how the protected species records should be considered for Priority Resource Area status

for the wetlands in the project area. She explained that the norther black racer is not typically found in wetland habitats. She noted that the wood turtle record was in one particular location of a long project.

R. Martin explained that although the project will pass the AoT threshold, impervious area is being reduced, so no stormwater treatment is intended. She explained that the project will have a SWPPP with monitoring and construction BMPs to protect water quality during construction. R. Martin noted that there are several conservation areas along the project area and impacts are proposed to the Thissell-Smith Memorial Forest, including impacts for 4 culvert replacements, slope impacts and impacts for a relocated and formalized driveway. She also noted that there are no floodplains in the project area. R Martin showed the Wildlife Action Plan and noted that there is supporting habitat adjacent to the north and south part of the project. She showed the Connect the Coast layer (TNC) and explained that the project is near, but not within, prioritized corridors and habitat blocks from the plan.

R. Martin noted that the aboveground cultural resource review is ongoing and some individual inventories are needed.

Karl Benedict commented that the wetland impacts seem to mostly be in previously disturbed areas. He commented that the intended restoration for the temporary impact areas should be noted in the permit. K. Benedict noted that correcting perches of pipes being replaced is a good thing. K. Benedict had some questions about stone aprons. R. Martin shared that there is only 1 intermittent stream crossing and the other pipes are drainage. For the intermittent stream K. Benedict commented that a single pipe is preferred over twin pipes. K. Benedict shared that the WPPT is just a screening tool, since Stoney Ridge did not find peatlands during the delineation, there are not peatlands considered to be in the project area. He noted that the area where the water is being diverted out of the wetland ditch would be a permanent impact. He noted that the presence of protected species is vicinity based, so yes, the project classification would be increased to major.

Lori Sommer agreed with K. Benedict that the project would be a major classification. She added that since the NH Fish and Game Department recommendations are being incorporated into the project, no mitigation would be required. L. Sommer also noted that no mitigation is required for the stream impacts nor for the wetland impacts since they are less than 10,000 square feet. L. Sommer recommended reducing impacts to the Thissell-Smith Memorial Forest as much as possible. She also recommended coordination with the Thissell-Smith Memorial Forest regarding unavoidable impacts. L. Sommer inquired if an abutting project is being planned. Tobey Reynolds explained that there are no future projects planned in the immediate vicinity.

Pete Steckler noted that the Thissell-Smith Memorial Forest land provides some nice protection for connectivity in the area. He commented that upsizing crossings for wildlife passage where possible would be good- in particular the area is good bear habitat. P. Steckler commented that when coordinating with Thissell-Smith Memorial Forest about impacts, being able to share that the project is upsizing a crossing at the property for connectivity might be well received.

Jessica Bouchard inquired if there was potential for impacts to the known small whorled pogonia population on the adjacent (10431) project. R. Martin explained that there are not. J. Bouchard noted that last year was a very dry year and botanists are reporting that small whorled pogonia plants went dormant and did not show up in surveys. She recommended that, if there is potential for impacts to the two potentially suitable small whorled pogonia habitat locations, a survey be completed this year. K. Benedict asked that R. Martin review the status of the existing/known population on the 10431 project. R. Martin agreed to go review the known area and will review the potentially suitable habitat in the 41251 project area, if impacts are proposed.

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