F.E. Everett Turnpike Widening Project

Draft Environmental Study

APPENDIX B

AGENCY COORDINATION

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Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

To: Stephen Hoffmann
53 Regional Drive
Concord, NH 03301

From: Amy Lamb, NH Natural Heritage Bureau
Date: 1/25/2018 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB18-0238 Town: Nashua, Merrimack, Bedford Location: 3 segments along the F.E. Everett Turnpike

Description: The proposed project involves widening and roadway improvements along three segments of the F.E. Everett Turnpike. The approximate locations of the three segments are as follows: Segment 1 (southern) Exit 8 in Nashua to Exit 11 in Merrimack (1.5 miles), Segment 2 (middle) Exit 11 in Merrimack to vicinity of Bedford toll plaza (5.3 miles), and Segment 3 (northern) vicinity of Bedford toll plaza to north of I-293 interchange (1.3 miles)

cc: Kim Tuttle

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

Comments: This site is within an area flagged for possible impacts to the state-listed *Alasmidonta varicosa* (brook floater) in the Merrimack River. Please contact the NH Fish & Game Department. Please continue to coordinate with NHB to avoid/minimize rare plant impacts.

Invertebrate Species	**State[1]**	**Federal**	**Notes**
Brook Floater (*Alasmidonta varicosa*)	E	--	Contact the NH Fish & Game Dept (see below).

Natural Community	**State[1]**	**Federal**	**Notes**
High-gradient rocky riverbank system	--	--	Threats are primarily changes to the hydrology of the river, land conversion and fragmentation, introduction of invasive species, and increased input of nutrients and pollutants.

Plant species	**State[1]**	**Federal**	**Notes**
bird-foot violet (*Viola pedata var. pedata*)	T	--	This species occurs in sandplains, disturbed openings, dry forests, and thin woods. Threats would include direct destruction of the plants or major alterations in their habitat.
clasping milkweed (*Asclepias amplexicaulis*)*	T	--	This species grows in sandplains and disturbed openings, and is sensitive to disturbances that eliminate its habitat.
River Birch (*Betula nigra*)*	T	--	The population could be deleteriously affected by any project activities that alter the

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

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

			hydrology of its habitat, by increased sedimentation, and by increased nutrients/pollutants in stormwater runoff.
tall cottonsedge (*Eriophorum angustifolium ssp. angustifolium*)	E	--	The primary threats are changes to this species' peatland habitat, including changes to local hydrology, increased nutrient input from stormwater runoff, and sedimentation from nearby disturbance.
Wright's spikesedge (*Eleocharis diandra*)	E		Primarily vulnerable to changes to the hydrology of its wetland habitat, especially alterations that change water levels. It may also be susceptible to increased pollutants and nutrients carried in stormwater runoff.

Vertebrate species	**State[1]**	**Federal**	**Notes**
Peregrine Falcon (*Falco peregrinus anatum*)	T	--	Contact the NH Fish & Game Dept (see below).
American Eel (*Anguilla rostrata*)	SC	--	Contact the NH Fish & Game Dept (see below).
Bald Eagle (*Haliaeetus leucocephalus*)	SC	--	Contact the NH Fish & Game Dept (see below).
Blanding's Turtle (*Emydoidea blandingii*)	E	--	Contact the NH Fish & Game Dept (see below).
Eastern Hognose Snake (*Heterodon platirhinos*)	E	--	Contact the NH Fish & Game Dept (see below).
Northern Black Racer (*Coluber constrictor constrictor*)	T	--	Contact the NH Fish & Game Dept (see below).
Sea Lamprey (*Petromyzon marinus*)	SC	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle (*Clemmys guttata*)	T	--	Contact the NH Fish & Game Dept (see below).
Wood Turtle (*Glyptemys insculpta*)	SC	--	Contact the NH Fish & Game Dept (see below).

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

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

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

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

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

Jed S. Merrow

From: Paula Bellemore <pbellemore@lchip.org>
Sent: Thursday, December 8, 2016 5:04 PM
To: Stephen Hoffmann
Subject: RE: NHDOT Project - Nashua-Merrimack-Bedford 13761

Hello,
LCHIP has not assisted in the protection of any natural, cultural, or historic resources in the project area as described. I did note conservation lands that may fall within the proposed work area, in particular the Dumpling Brook Wildlife Management area in Merrimack, owned by NH Fish and Game, and the Reeds Ferry State Forest owned by the Department of Resources and Economic Development (although this appears to be just outside the project area, a a more detailed map would be needed to determine the exact line). In addition the Town of Bedford owns "unofficial" conservation land between the FEET and the Merrimack River.

Please let me know if I can be of further assistance.

Paula

Paula S. Bellemore, Natural Resource Specialist
Land and Community Heritage Investment Program

13 West Street, Suite 3
Concord, NH 03301
603.224.4113
www.LCHIP.org

From: Stephen Hoffmann [mailto:shoffmann@mjinc.com]
Sent: Thursday, December 08, 2016 3:59 PM
To: Paula Bellemore
Subject: NHDOT Project - Nashua-Merrimack-Bedford 13761

Good Afternoon Paula,

The subject project is proposing widening three segments of the F.E. Everett Turnpike from Nashua to Bedford. The project is also proposing to replace or rehabilitate the following; the bridge over Pennichuck Brook, Wire Road Bridge over the FEET, Baboosic Lake Road Bridge over the FEET, the structure at the Baboosic Brook crossing, rehabilitate the FEET bridge over Greeley Street/Continental Boulevard, and stormwater treatment improvements throughout. A brief description of the three project segments is included below.

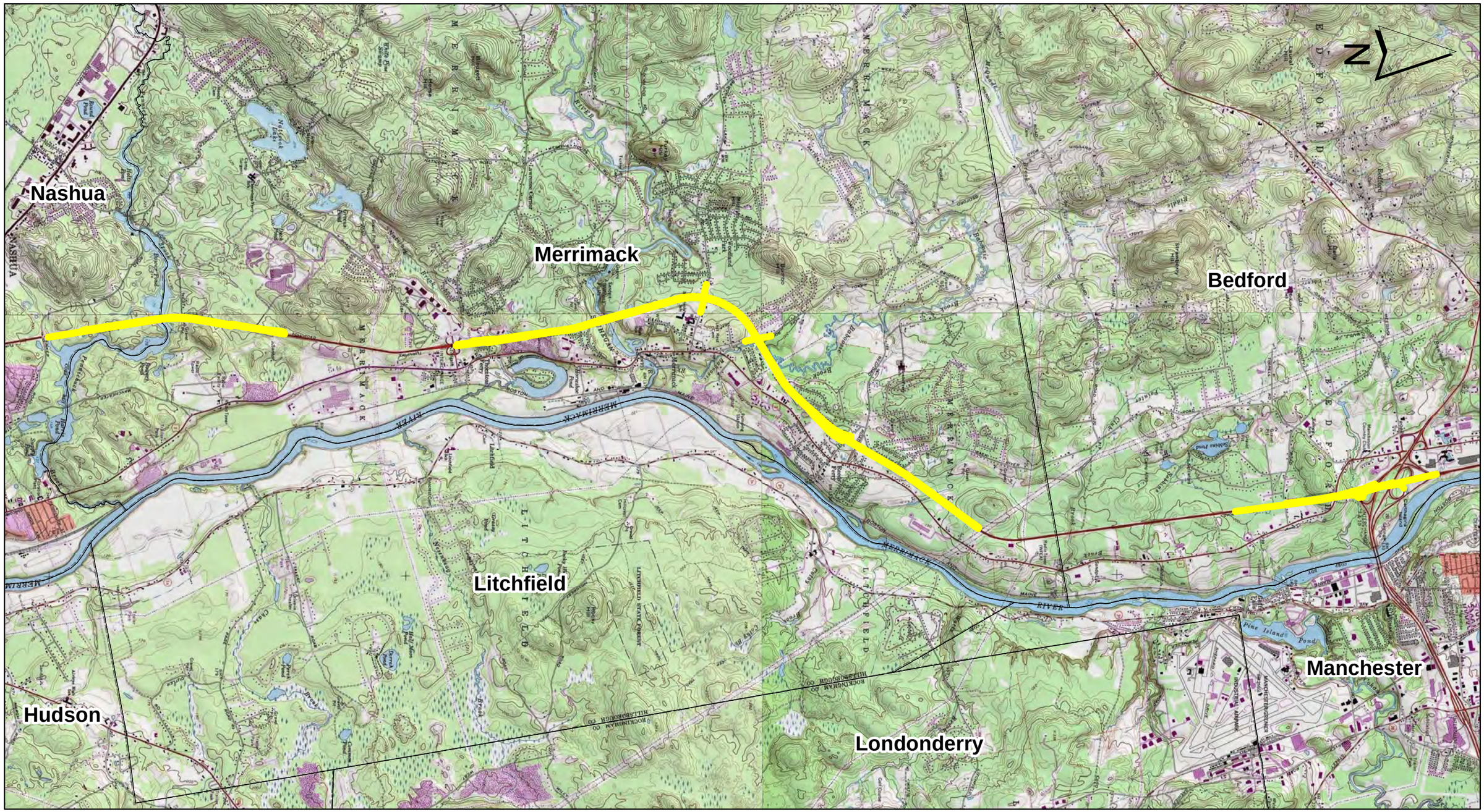
Southern Segment begins approximately 2000 feet north of the Exit 8 overpass bridge in Nashua and runs northerly for approximately 1.5 miles, ending approximately 1000 feet south of the Exit 10 overpass bridge in Merrimack.
Middle Segment begins just north of the bridges over Continental Boulevard at Exit 11 and runs northerly for approximately 5.3 miles, ending approximately one mile south of the Bedford Toll Plaza. This segment includes the Exit 12 interchange and is entirely within Merrimack.
Northern Segment begins approximately 0.6 miles south of the US Route 3 overpass bridge and runs northerly for approximately 1.3 miles, ending within the I-293 interchange.

McFarland Johnson is completing the environmental review for this project on behalf of NHDOT. I'm writing to find out if there are any LCHIP concerns in the area that we should be aware of. A project location map is attached. Additional information can be found on the project website at http://www.everettturnpikewidening.com/.

Thank you for your help,

Steve

Stephen Hoffmann • Environmental Analyst
McFarland Johnson
53 Regional Drive • Concord, NH 03301
OFFICE: 603-225-2978 ext. 136
www.mjinc.com



Area of Potential Effect

Towns

NH Department of Transportation

Nashua-Merrimack-Bedford, 13761, F.E. Everett Turnpike

Area of Potential Effect

SCALE :	DATE :	FIGURE :
1 inch = 4,000 feet	DECEMBER 2016	1

McFarland Johnson

Jed S. Merrow

From: Walker, Steve <Steve.Walker@nh.gov>
Sent: Friday, December 9, 2016 7:01 AM
To: Stephen Hoffmann
Subject: RE: NHDOT Project - Nashua-Merrimack-Bedford 13761

Good Morning Stephen, here are no LCIP properties in the project areas. Thanks. steph

---

From: Stephen Hoffmann [mailto:shoffmann@mjinc.com]
Sent: Thursday, December 08, 2016 3:56 PM
To: Walker, Steve
Subject: NHDOT Project - Nashua-Merrimack-Bedford 13761

Good Afternoon Steve,

The subject project is proposing widening three segments of the F.E. Everett Turnpike from Nashua to Bedford. The project is also proposing to replace or rehabilitate the following; the bridge over Pennichuck Brook, Wire Road Bridge over the FEET, Baboosic Lake Road Bridge over the FEET, the structure at the Baboosic Brook crossing, rehabilitate the FEET bridge over Greeley Street/Continental Boulevard, and stormwater treatment improvements throughout. A brief description of the three project segments is included below.

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Northern Segment begins approximately 0.6 miles south of the US Route 3 overpass bridge and runs northerly for approximately 1.3 miles, ending within the I-293 interchange.

McFarland Johnson is completing the environmental review for this project on behalf of NHDOT. I'm writing to find out if there are any LCIP concerns in the area that we should be aware of. A project location map is attached. Additional information can be found on the project website at http://www.everettturnpikewidening.com/.

Thank you for your help,
Steve

Stephen Hoffmann • Environmental Analyst
McFarland Johnson
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Jed S. Merrow

From: DRED: Land & Water Conservation Fund <LWCF@dred.nh.gov>
Sent: Thursday, December 8, 2016 4:49 PM
To: Stephen Hoffmann
Subject: RE: NHDOT Project - Nashua-Merrimack-Bedford 13761
Attachments: 33-00092, 33-00560 aerial.pdf; 33-00560.pdf

Hi Steve,

There would be a concern regarding the middle section in Merrimack, at the Baboosic Lake Road Bridge. Adjacent to this location is a 6(f)(3) property. See attached. This property has been subject to two separate LWCF grants, 33-00092 and 33-00560.

Please confirm that the widening of the turnpike or repairs to the bridge will not encroach on this property, and that the scope of work will be contained within the turnpike and road ROWs. It is also important that no project staging occur within this property.

Please let me know if you have any questions.

Thanks!

Bill

Bill Gegas, Program Specialist
NH Department of Resources and Economic Development
Division of Parks and Recreation
172 Pembroke Road
Concord, NH 03301-5767
Tel: 603-271-3556
Fax: 603-271-3553
bill.gegas@dred.nh.gov
www.nhstateparks.org

From: Stephen Hoffmann [mailto:shoffmann@mjinc.com]
Sent: Thursday, December 08, 2016 4:06 PM
To: DRED: Land & Water Conservation Fund
Subject: NHDOT Project - Nashua-Merrimack-Bedford 13761

Good Afternoon,

The subject project is proposing widening three segments of the F.E. Everett Turnpike from Nashua to Bedford. The project is also proposing to replace or rehabilitate the following; the bridge over Pennichuck Brook, Wire Road Bridge over the FEET, Baboosic Lake Road Bridge over the FEET, the structure at the Baboosic Brook crossing, rehabilitate the FEET bridge over Greeley Street/Continental Boulevard, and stormwater treatment improvements throughout. A brief description of the three project segments is included below.

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Northern Segment begins approximately 0.6 miles south of the US Route 3 overpass bridge and runs northerly for approximately 1.3 miles, ending within the I-293 interchange.

McFarland Johnson is completing the environmental review for this project on behalf of NHDOT. I'm writing to find out if there are any LWCF concerns in the area that we should be aware of. A project location map is attached. Additional information can be found on the project website at http://www.everettturnpikewidening.com/.

Thank you for your help,

Steve

Stephen Hoffmann • Environmental Analyst
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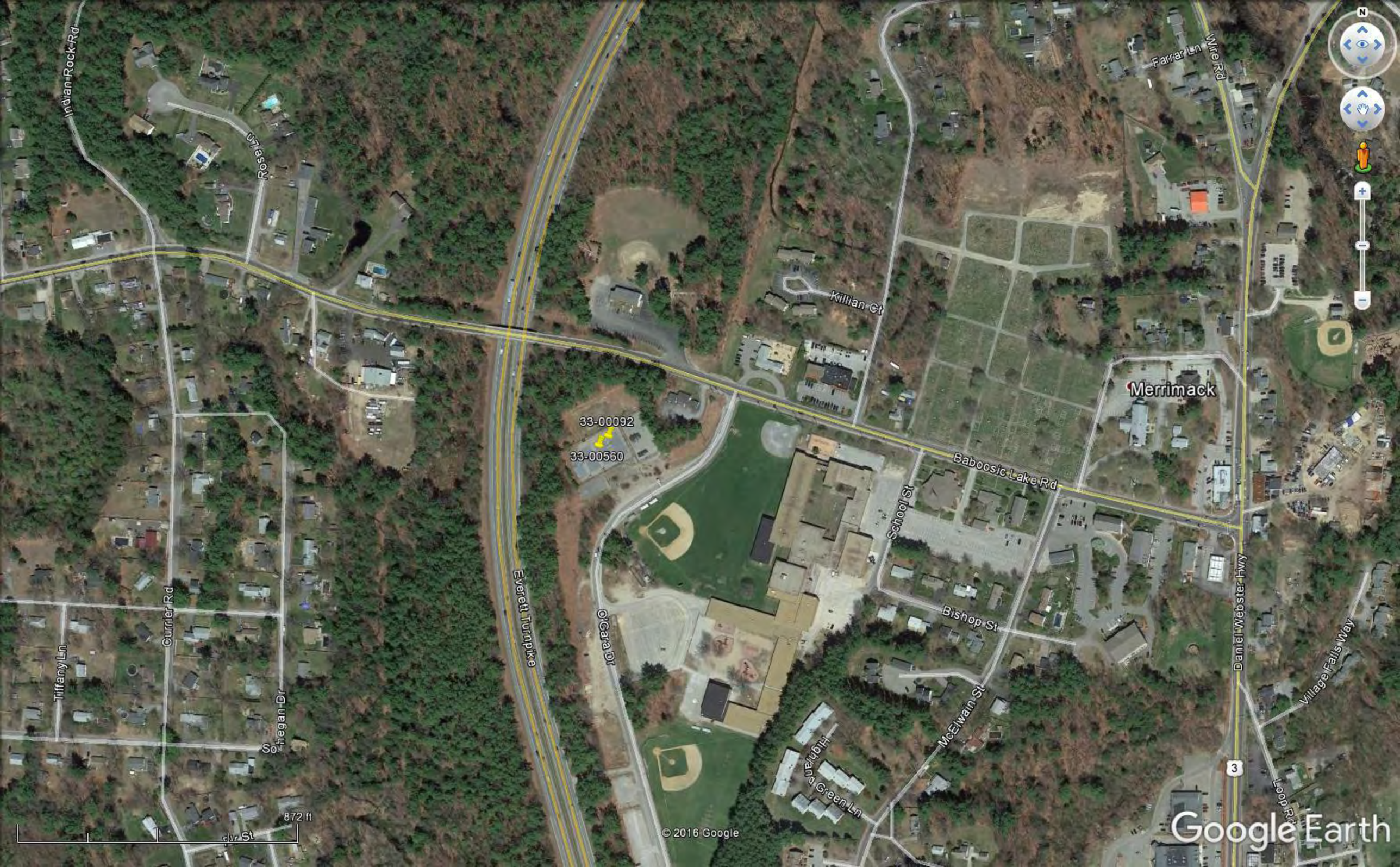
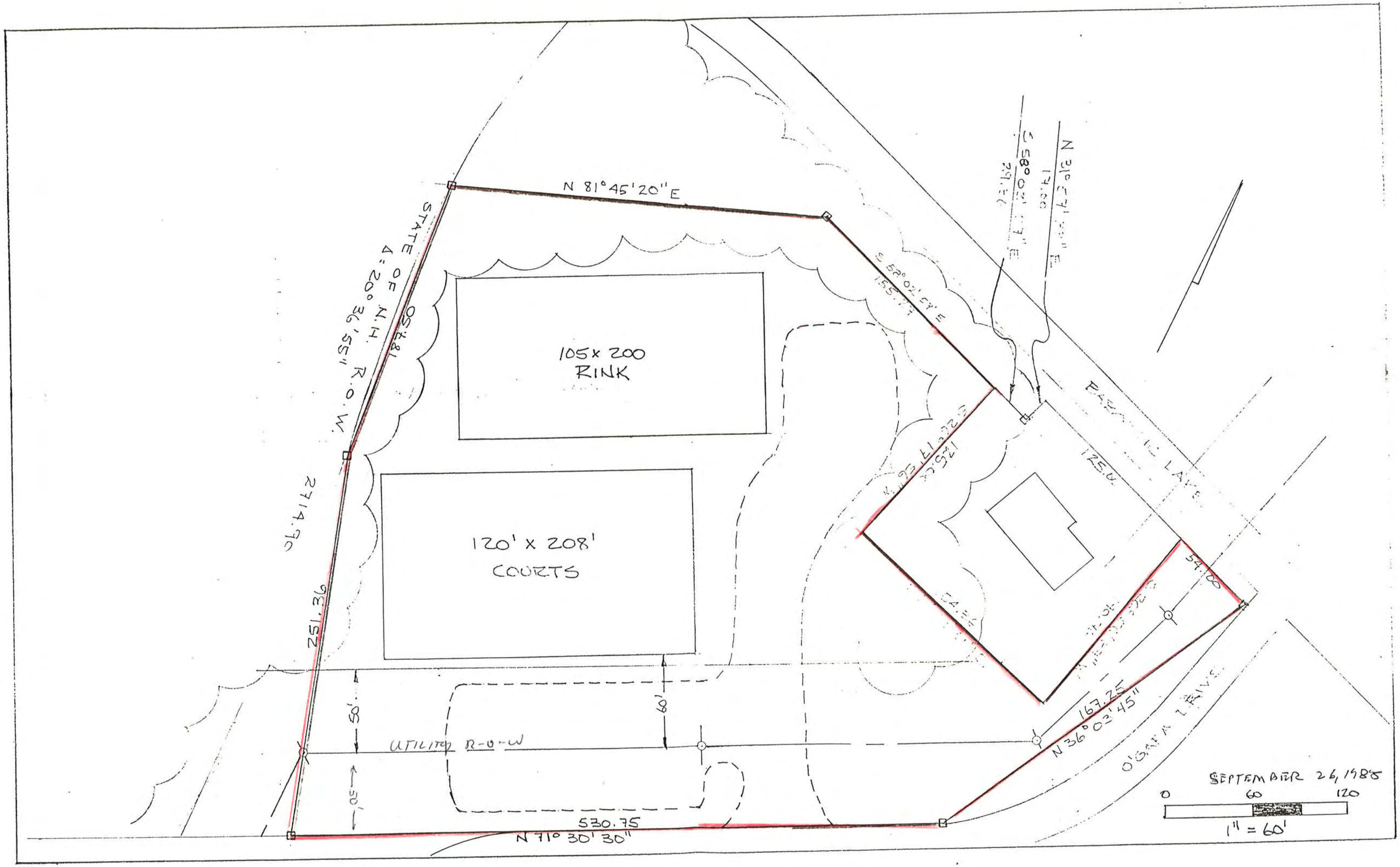

Indian Rock Rd
Wason Rd
Killian Ct
Farrar Ln
Wire Rd
Merrimack
33-00092
33-00560
Baboosic Lake Rd
School St
Bishop St
McElwain St
Highland Green Ln
Everett Turnpike
O'Gara Dr
Daniel Webster Hwy
Village Falls Way
Loop Rd
3
Tiffany Ln
Currier Rd
Sohegan Dr
872 ft
© 2016 Google
Google Earth



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RINK
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COURTS
2714.70
251.36
50'
60'
UTILITY R-O-W
530.75
N 71° 30' 30"
167.75
N 36° 03' 45"
O'GARA DRIVE
54.00
125.0
SEPTEMBER 26, 1988
0
60
120
1" = 60'

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: October 19, 2016
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Mark Hemmerlein
Marc Laurin
Kerry Ryan
Jon Evans
Anthony Weatherbee
Chris Carucci
Dave Smith
Victoria Chase
Gerald Bedard
Jon Hebert
Wendy Johnson
Ron Kleiner
Jessica D'Entremont
Charles Blackman
Maggie Baldwin
Keith Cota

Army Corps of Engineers
Michael Hicks

NHDES
Gino Infascelli
Lori Sommer
Mary Ann Tilton

NH Fish & Game
Carol Henderson

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
Christine Perron
Vicki Chase
Mike Long
David Kull
Jed Merrow
Steve Hodgdon
Peter Walker
Chris Bean
Leo Tidd
Mark Hutchins
Michael Fowler
Janusz Czuzowski
Steve Hoffmann
Ben Martin

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

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project

tree removal in the area of the proposed maintenance ramps must be reviewed by the US Fish and Wildlife Service. He noted that as the proposed tree removal is would be completed in proximity to the Turnpike and there are no known northern long-eared bat roost trees or bat hibernacula within or nearby the project area, the Department intends to work with the US Army Corps of Engineers as the lead federal agency to utilize the 4(D) rule of the endangered species act without the implementation of any avoidance and minimization measures. Mike Hicks agreed with this approach and indicated that he would assist the Department in coordinating this effort with the US Fish and Wildlife Service. He also encouraged the Department to complete an updated IPaC search to ensure no other federally listed threatened or endangered species were within the project area that should be coordinated at the same time. J. Evans indicated that the most recent NH Natural Heritage Bureau search did not indicate the presence of any federally listed threatened or endangered species were within the project area but that he would complete the necessary IPaC search.

J. Evans noted that the most recent NH Natural Heritage Bureau search was completed about a year ago and therefore an updated search would be submitted in the near future. He noted however that the most recent search indicated the potential presence of the bird's foot violet, a state listed threatened species. J. Evans indicated that the Department was aware of the existence of this plant species throughout the corridor of the F.E. Everett Turnpike. He noted that the nearest known location was to the south of the existing soundwall which is approximately 1,000 feet from any proposed efforts. He also noted that it was his understanding that the bird's foot violet grows primarily in cleared areas and requires special mowing practices which avoid mowing during the spring at a height greater than 6 inches. As the areas that would be disturbed in association with the proposed project would either be in a forested area (at the exit 12 maintenance ramps) or within areas which are frequently mowed starting in the spring at a height below 6 inches, J. Evans felt impacts to any bird's foot violet plants were unlikely. He also mentioned that he had completed several field reviews of the project area, including during the spring flower season and did not note the presence of any bird's foot violets. Amy Lamb noted that although an updated heritage bureau search was necessary, she agreed that it was unlikely that the bird's foot violet was present within the proposed impact areas and as such no further investigation related to the presence of this species would be necessary unless the project limits changed substantially.

Carol Henderson requested that the Department limit the use of concrete barrier as much as possible as it can cause wildlife to become trapped within the highway which usually results in mortality. D. Smith indicated that the use of concrete barrier would be minimized as much as possible while still meeting the necessary design safety requirements.

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

Nashua-Merrimack-Bedford #13761 (Non-Federal)

Jed Merrow introduced the project. The primary purpose of the project is to relieve traffic congestion on the turnpike segments that are two lanes in each direction, presumably by widening to three lanes. There are three segments that would be widened: From Exit 8 in Nashua to Exit 10 in Merrimack, from Exit 11 to a point north of Exit 12 in Merrimack, and north of Exit 13 (Airport Access Road) to the I-293 interchange in Bedford. The road would be kept on the existing

alignment where possible, with widening to both the middle (median) and outside edges and a jersey barrier in the median. NHDOT plans to prepare an environmental assessment with FHWA as the lead federal agency; although it is a turnpike-funded project, it is a project of Divisional Interest. Mike Hicks will send a letter to FHWA once this is confirmed.
Design work has only begun very recently.

J. Merrow described existing natural resources that have been identified to date. The southern segment has areas of intact wildlife habitat on both sides of the highway, especially around Pennichuck Brook. The middle segment has areas of intact habitat and conservation lands in several locations along the corridor, notably the Birches Open Space, Wildcat Falls Conservation Area, Indian Rock Open Space, and Dumpling Brook Wildlife Management Area, all on the west side of the turnpike. The northern segment has only a few smaller patches of intact habitat and conservation land.

Exemplary Natural Communities include a high-gradient rocky riverbank system (the Souhegan River) and red maple floodplain forest (along Baboosic Brook). The state-endangered brook floater, state-threatened bird-foot violet, state-endangered eastern hognose snake, state-endangered New England cottontail, and state-special concern wood turtle are all found in multiple places along the corridor. Carol Henderson noted that the brook floater, although it is not shown as occurring in Naticook Brook, but may occur in the brook or associated ponds. The state-threatened northern black racer had been found near the northern end of the southern segment, but the habitat may no longer be present. A state-endangered Blanding's Turtle was found on the edge of the turnpike north of the Souhegan River, and several other state-listed species have been found nearby. Carol Henderson asked about cottontail habitat and noted they could occur in any dense shrubby or early successional areas, including shrub swamps and urban areas. The Souhegan River and a portion of Naticook Brook are designated Essential Fish Habitat, which will require coordination with the National Marine Fisheries Service. The Souhegan is also a Designated River in the state rivers program. The study area is also within the northern long-eared bat's range, so tree clearing would need to be addressed.

Wetlands occur in many places along the corridor and have been delineated and mapped. Notable wetlands include the areas along Pennichuck Brook, a wetland complex between Wildcat Falls Conservation Area and the turnpike, a shrub swamp along the east side of the northern segment, and wetlands within the I-293 interchange. There are also several potential vernal pools. Waterways include Pennichuck Brook (also called Bowers Pond in the project area), Naticook Brook, Souhegan River, Baboosic Brook, and two unnamed streams, all of which are believed to be perennial streams. Most of the streams are impaired in terms of water quality, and the unnamed stream just south of the I-293 interchange has very high chloride levels.

The Pennichuck Brook bridges will need to be replaced. The Souhegan River bridge is fairly new and sufficiently wide to accommodate a wider turnpike, and will not be altered. At Baboosic Brook, the existing twin 15-foot wide box culverts are in good condition but will need to be extended or replaced. The floodplain and floodway are mapped as reaching several feet above the turnpike elevation. The Town of Merrimack is studying all of the structures along the brook from Bedford Road (upstream) to the Merrimack River. MJ has requested the hydraulic study done for

that project. Baboosic Brook also has an exemplary natural community, rare species, and wetlands. The three other stream culverts will probably need to be extended or replaced.

Potential impacts to these resources have not yet been determined, with the exception of Pennichuck Brook, where several bridge alternatives are under consideration. A matrix was handed out which lists the 7 alternatives and options that have been considered to date. The cost estimates include approximate mitigation costs (based on the stream calculator). Alternatives 2 and 4 involve temporary causeways and bridge, resulting in higher temporary impacts and cost without other advantages. Alternative 5 involves rehabilitation, but would still involve permanent impacts and would not address structural concerns with the existing bridges. Alternative 6 would require one lane of traffic in each direction, which would result in substantial traffic delays. Alternative 7 would involve removing both causeways, which would increase the amount of aquatic habitat but would cost around $24.5 million. For these reasons, Alternatives 2, 4, 5, 6, and 7 were proposed to be eliminated. There was general agreement with this decision.

Alternative 1 proposes a 14-foot shift in the alignment to the east and widening without a temporary causeway or bridge, so temporary impacts would be lower. Alternative 3 would maintain the existing centerline but would require a temporary causeway and bridge. Either Alternative 1 or 3 could be constructed with 2:1 or 1.5:1 side slopes or with retaining walls. Additionally, alternatives that would result in "net zero" impacts to the brook were investigated. This would be accomplished by reducing the lengths of the causeways and constructing longer bridges. The longer bridges would require deeper steel beams, so the road profile would have to be raised, resulting in more fill in the brook along the sides of the alignment. To compensate for the additional fill, more of the causeways would have to be removed, making the bridges even longer and much more expensive. For this reason, "net zero" alternatives with 2:1 or 1.5:1 side slopes would not be feasible, and it was agreed did not need further study. Net zero alternatives with retaining walls will continue to be studied, although it was noted that retaining walls have higher initial costs and long-term maintenance and replacement costs.

In summary, Alternatives 1 and 3 with 2:1 and 1.5:1 side slopes and retaining walls will be studied, along with net zero options with retaining walls. Ideally the design would include a shelf for wildlife travel under the bridge, although terrestrial wildlife numbers might be low. Mr. Hicks noted that there is floodplain and floodway and associated regulatory requirements at this location, typically requiring no increase in the base flood elevation. FEMA regulations may be revised soon. Pennichuck Brook and associated wetlands are prime wetlands in Nashua, which have stricter impact and mitigation considerations. MJ will follow up on a question regarding ownership of the land at/under Pennichuck Brook. Regarding mitigation, the NHDOT owns a parcel north of the Souhegan River, between the Wildcat Falls Open Space and the turnpike, with a high quality wetland complex and potential mitigation value. NHDOT will provide the consultant team with a list of surplus properties. Ms. Sommer noted that a parcel with high conservation value was preserved within the Pennichuck Brook watershed that could be an example for this project's mitigation.

Nest steps include historical and archeological resource studies, evaluating the mainline widening impacts, avoidance and minimization of impacts, Baboosic Brook alternatives. The Draft EA is

planned to be available in June 2017. Coordination regarding conservation land impacts should commence as soon as possible.

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

Ossipee #14749 (X-A000(490))

Christine Perron provided an overview of the project's status and proposed impacts. The project proposes to replace three bridges and rehabilitate 3.4 miles of NH Route 16/25. The bridges span the Lovell River, Bearcamp River, and Bearcamp River Relief. The bridge over the Lovell River will be replaced on the same alignment and a temporary bridge will be installed upstream to maintain traffic during construction. The bridges over the Bearcamp River and Bearcamp Relief will be replaced on the same alignment using slide-in bridge construction, which involves building the new bridge next to the existing bridge, closing the road for a 60-hour period per bridge, and sliding the new bridge into place.

This project was last discussed at the August 17, 2016 resource agency meeting. The only substantial change in the project's design since that meeting involves the proposed pavement treatment. The original treatment was going to result in raising the roadway approximately 12" in some locations, which would require slope widening. Pavement treatment that is now proposed will result in only a ½" raise in roadway, so widening slopes will not be necessary. The only exception to this is the slope widening that will be necessary at the Lovell River and Bearcamp River bridges to match the approach roadway into the new bridges that will be installed at a higher elevation.

The project schedule was reviewed. The project is near the end of the preliminary design phase, with a draft NEPA document to be completed in early November and a DOT Public Hearing expected in early December. Once the Hearing Commission makes a finding of necessity, the NEPA document will be finalized and final design of the project will begin. At this time, an advertising date in the summer of 2018 is anticipated. Based on the current schedule, permit applications will be prepared in mid-2017. The project will be reviewed with the resource agencies once more, prior to submittal of permit applications.

The Lovell River and Bearcamp River bridges are Tier 3 stream crossings. The Lovell River has a bankfull width of 45' based on field measurements. The span recommended by the Stream Crossing Guidelines (1.2x bankfull+2') is 56'long. The existing span is 58' long. The proposed span is 97'long, with the new abutments placed behind existing abutments and the existing abutments removed. The stream crossing general design criteria and Tier 3 design criteria were reviewed. The existing span meets these design criteria, including the opportunity for wildlife passage under the bridge (smaller animals) and accommodating the 100-year storm. The proposed span would also meet these design criteria. The new bridge would have abutments further back from the top of bank and could seek to improve wildlife passage by providing a more level shelf in the riprap.

The Bearcamp River has an estimated bankfull width of 145'. This is calculated from the regional geometry curves based on a drainage area of 150 square miles. At the time of the stream assessment, the river was too deep to obtain accurate field measurements of bankfull width. A laser distance finder was used in the field and resulted in bankfull measurements of approximately 120'. Measuring the distance from top of bank to top of bank off the plan shows a width of approximately 135'. Based on these numbers, the calculated bankfull width of 145' seems reasonable. The span recommended by the Stream Crossing Guidelines (1.2x bankfull+2') is 176'long. The existing 5-span bridge is 392' long. The proposed 3-span bridge will be 410' long with the new abutments placed behind existing abutments and existing abutments removed. In addition, the new bridge will have two piers instead of four. The two

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: November 16, 2016
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Mark Hemmerlein
Marc Laurin
Jon Evans
Rebecca Martin
Anthony Weatherbee
Don Lyford
Leah Savage
Jon Hebert
Jim Kirouac
Ali Skinner
Kathy Corliss
Tim Mallette
Josh Lafond
Chris Carucci
Carol Niewola
Stephanie Micucci
Bill Saffian
Colleen White
Kirk Mudgett
Wendy Johnson
Dave Smith

Army Corps of Engineers
Rick Kristoff

NHDES
Gino Infascelli
Lori Sommer

NH Fish & Game
Carol Henderson
John Magee

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
Christine Perron
Brian Patinskas
Josh Lund
Jed Merrow
Steve Hoffmann
Dave Kull
Don Kretchmer
Ryan Lizewski
Bill Arcieri
John Gorham
Marv Everson
Martha Drukker

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

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project

Nashua-Merrimack-Bedford 13761 (IM-0931(201))
This project involves widening approximately 8.1 miles of Everett Turnpike from two lanes to three in each direction. The purpose of this agenda item was to discuss the Baboosic Brook culvert under the turnpike and rare species issues.

Baboosic Brook flows through twin side-by-side 15- by 15-foot box culverts just north of the Wire Road overpass in Merrimack. There are mapped floodplains, floodway, wetlands, rare species occurrences, and an exemplary natural community in the vicinity of the crossing. The mapped 100-year floodplain elevation is several feet higher than the turnpike elevation, although the Department is not aware of instances where flood water overtopped the turnpike. The current culverts' hydraulic capacity is much smaller than what would be needed to pass the 100-year flood. The Town of Merrimack recently contracted with Quantum Construction Consultants to conduct a hydrologic and hydraulic analysis of the Baboosic Brook structures under Bedford Road (upstream of the turnpike), the turnpike, McGaw Road (downstream), and Route 3 (further downstream). The McGaw Road structure was replaced with a larger structure this year. Route 3 currently constricts flood flows and its replacement will lower 100-year flood elevations and flow volumes upstream, including at the turnpike. Quantum calculated that the turnpike culvert would require a 1,080 square feet (SF) opening to pass the 100-year flood, assuming the Bedford Road, McGaw Road, and Route 3 structures were all improved. MJ used this analysis in evaluating alternatives for Baboosic Brook under the turnpike. The ability of alternatives to pass the 100-year flood flow, or at least enough to prevent overtopping of the highway, was a primary consideration.

Dave Kull described the alternatives under consideration:

- Alternative 1: The existing culverts are in good condition and could be extended. This would leave the culverts under-sized in terms of flood capacity (380 SF opening) and bankfull width, and would not provide a natural stream bottom or accommodate terrestrial wildlife.
- Alternative 2: This would be a single "O-Series" concrete culvert. The culvert would still be under-sized in terms of flood capacity (540 SF opening) and would not have room for a wildlife shelf, but would provide bankfull width and a natural stream bottom.
- Alternative 3: A multi-cell culvert could be constructed and would be closer to accommodating flood flows, with a natural streambed and wildlife accommodation. More work is needed to determine the best combination of stream width and depth in each cell in this alternative.
- Alternative 4: A new bridge would replace the culverts, and could accommodate at least enough flood flow to prevent overtopping the road during the 100-year event, and would provide the full bankfull width, a natural stream bottom and wildlife accommodation.

Costs of these alternatives are still being determined. The Department would like to keep two lanes of traffic open in each direction while the new or expanded structures are built. This could require a temporary bridge over part of the brook. It will also be challenging to maintain stream flow during construction. Constructability should be added to the decision matrix. Dave Smith

noted that constructing the new structure on a different alignment would be easier than following the same stream alignment. Lori Sommer suggested a new alignment be added as an alternative, and noted it may pose challenges in terms of resource impacts. John Magee recommended studying the fluvial geomorphology of existing and proposed new alignment alternatives to determine how they would affect stream dynamics and stability downstream. Jon Evans noted that the alternatives could result in an increase in natural streambed which could potentially mitigate for the associated stream impacts.

Rare species were then discussed. Jed Merrow showed aerial images with the locations of each species along the corridor, and described the habitat needs of each.

- Bird-foot violet: There are several locations along the southern and middle segments, most if not all transplanted as mitigation for another transportation project. Mr. Merrow proposed searching suitable habitat for the plants prior to construction, then discussing transplanting if found. Amy Lamb thought that would be appropriate.
- Clasping milkweed: The location is 0.4 miles east of the project and was found in 1984 but not in 2010. Ms. Lamb recommended looking for this species in appropriate habitat along the alignment, such as power lines. It would be better to do this kind of survey before design is finalized.
- River birch: This is a floodplain species and was found on an island in the Merrimack River. Where tree removal is proposed in floodplains there should be a survey for this species.
- Tall cottonsedge: This is a bog species that was found approximately 0.35 miles east of the alignment at Exit 10. There are no other nearby records and no bogs along the highway, so no additional survey is needed. Stormwater management should be reviewed to ensure the bog habitat is not adversely affected by project runoff.
- Blanding's turtle: One individual was found on the turnpike north of the Souhegan River and a second downstream near the confluence of Baboosic Brook and the Souhegan River. There is apparently suitable habitat west of the highway in this area. Measures to avoid or minimize impacts to this species were discussed, and included fencing to prevent their travel on the road surface; wildlife accommodation under bridges and culverts; avoiding curbing so they will not get trapped on the roadway; signage to alert motorists to the presence of turtles (unlikely to be effective and unlikely to be approved by the Traffic Bureau); wildlife-friendly erosion control matting (coconut matting rather than plastic netting, for example); contractor education (trainings, flyers); and other construction provisions. Kim Tuttle and Mike Marchand should be contacted for their input.
- Wood turtle: Individuals were found in 2013 and 2015 west of the middle turnpike segment. There may be populations associated with Baboosic Brook or the Souhegan River. Wildlife accommodation within structures, fencing, and time-of-year restrictions could be considered.

- Spotted turtle: One was found in 2004 along the turnpike between the middle and northern segments. There does not appear to be suitable spotted turtle habitat along the turnpike, so no further efforts are proposed.
- Hognose snake: This species has been found in several locations near all three project turnpike segments. They prefer sandy soils and open areas, such as power lines, gravel pit borders, and possibly roadside habitat. Suitable habitat along the corridor should be identified and possible effects quantified, followed by further discussion with the agencies.
- Black racer: A population occurred north of the southern segment, but much of the habitat was removed around 2009 and three snakes were captured and relocated. The habitat in that area should be reviewed and impacts determined, followed by further discussion with the agencies.
- New England cottontail: A 2002 study found several individuals near the northern and middle segments. Suitable habitat (areas with thick shrubs) along those segments should be identified and impacts determined, followed by further discussion with the agencies.
- Bald eagle: There are many bald eagle records along the Merrimack River, along with recent nest records near the northern and southern ends of the turnpike project. Potentially suitable roosting trees along the alignment should be identified, and if they may be affected, the Department should coordinate with the agencies, including U.S. Fish and Wildlife Service. Work more than 600 feet from known eagle habitat may not be a concern.
- American eel and sea lamprey: American eel has been found in Baboosic Brook and the Souhegan River, and may occur in Pennichuck Brook. Sea lamprey was found in Naticook Brook and may occur in Baboosic Brook. Their presence could be assumed in these waterways, and potential impacts addressed through time-of-year restrictions on construction.
- Brook floater: Brook floaters have been found in the Merrimack River at the northern end of the study area and further north. John Magee recommended surveying streams with suitable habitat prior to construction so any rare mussels can be relocated.
- Red maple floodplain forest: This is mapped along the Baboosic River. Impacts to any such habitat will be quantified.
- High gradient rocky riverbank system: This is mapped at the Souhegan River. No work is expected within this natural community type.
- Northern long-eared bat: The entire project area is within this species' range, but there were no records of its occurrence there. They can occur in a variety of forested habitats, and some forested land will likely be affected. The project team will coordinate with U.S. Fish and Wildlife Service to determine whether acoustic monitoring or other steps are needed.

Mr. Merrow reported on preliminary wetland impact numbers. At this point it appears that roughly 2 to 2.5 acres of wetlands and waterways will be impacted. To better define impacts, more work is needed on bridge and culvert design, construction impacts, stormwater management measure location and design; and other potential impacts such as cut slopes adjacent to wetlands.

This project has been previously discussed at the 10/19/2016 Monthly Natural Resource Agency Coordination Meetings.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: February 15th, 2017
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Sarah Large
Ron Crickard
Mark Hemmerlein
David Kammer
Marc Laurin
Kevin Nyhan
Rebecca Martin
Jon Evans
Steve Johnson
Cassandra Burns
Stephanie Micucci
Bill Saffian
Sally Gunn
Don Lyford
Shaun Flynn
Samantha Fifield
C.R. Willkie
Joseph Adams
Michael Licciardi
Jon Hebert
Wendy Johnson
Bob Landry

EPA
Mark Kern

NHDES
Gino Infascelli
Lori Sommer
Pierce Rigrod

NHF&G
Carol Henderson
John Magee

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
Dawn Tuomala
Jim Bouchard
Lisa Martin
Don Lussier
John Parrelli
Josif Bicja
Kimberly Peace
Sean James
Brad Harriman
Christine Perron
Brian Colburn
Matt Lundsted
Clint Mercer
David Kull
Jed Merrow

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

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

the river side and the proximity of the railroad limit opportunities to the east of Route 12. It would be close to impossible to obtain the amount of N treatment needed.

Discussion took place regarding options for permitting the project individually by town to potentially get under thresholds but it was noted that the impacts in Walpole alone exceed "general permit" levels. D. Lyford inquired if Meany's Cove was considered part of the river and whether a distinction would impact thresholds. It was noted that impacts outside the river exceed thresholds anyway.
Although M. Kern expressed support for obtaining an individual Army Corps permit he noted that if in the future it was determined through project modification or coordination with the resource agencies that the project would in fact qualify for coverage under the NH Programmatic General Permit, the EPA would not object and thus would not request an individual permit be obtained for this effort.

L. Sommer inquired as to what the current drainage is doing in this location and whether any culverts would be retrofitted. S. Fifield noted that much of the runoff is sheet runoff or is collected at around five locations in pipes (which will be extended through the proposed slope). D. Lyford noted that an underdrain is proposed along the railroad side. M. Hemmerlein noted that another concern regarding water treatment ponds or infiltration is shear failure of the slope into the river from added soil water pressure and noted this continues to be researched.

M. Hicks reiterated that the numbers appear to push the project into an individual USACE permit and that the combination of section 10 (believe 1 acre in CT River) and 404 (at 3 acres) impacts affect how to come up with a rational basis for splitting the project and to convince USACE.
Note: Subsequent to the meeting, M. Hicks discussed the project with J. Evans on February 21, 2017 and corrected his original conclusion regarding the anticipated section 10 impacts. M. Hicks indicated during this phone conversation that section 10 is only applicable to navigable tidal waters and as this section of the CT River is non-tidal and has limited navigability due to numerous downstream dams, the 1 acre section 10 limit requiring an individual 404 permit was not applicable in this case. During this conversation M. Hicks confirmed that in order for the project to qualify for coverage under the NH Programmatic General Permit, the total permanent and temporary impacts within Army Corps jurisdiction would need to be less than 3 acres. M. Hicks also confirmed during this conversation that given the support for PGP coverage expressed by M. Kern during the meeting, if the project impacts were revised to total less than 3 acres, he felt the project would qualify for PGP coverage and thus would not require an individual 404 permit.

This project has been previously discussed at the 4/18/2007, 8/20/2008, 5/20/2009, 10/29/2009, 4/21/2010, 6/16/2010, 1/20/2016, and 3/15/16 *Monthly Natural Resource Agency Coordination Meetings.*

Nashua-Merrimack-Bedford, #13761 (IM-0931(201))
This project involves widening approximately 7.5 miles of Everett Turnpike from two lanes to three in each direction. The purpose of this agenda item was to discuss the ongoing alternatives analysis of the Pennichuck Brook and Baboosic Brook crossings.

Pennichuck Brook Alternatives 2, 4, 5, 6, and 7 had been discussed at the October 19, 2016 meeting, and it was agreed they could be eliminated from consideration.

Alternative 3 would maintain the existing turnpike centerline but would also require a temporary bridge to construct. The temporary impacts and costs would be higher than the corresponding versions of Alternative 1 without other benefits. It was agreed Alternative 3 could be eliminated from further consideration.

Alternative 1 involves a 14-foot shift of the centerline. There are four versions of Alternative 1: 2:1 side slopes, 1.5:1 side slopes, retaining walls, and retaining walls with "net zero" impacts below ordinary high water (OHW). The NHDOT would prefer not to construct retaining walls, due to their higher construction cost and long-term maintenance costs. The 2:1 slope option would have greater impact below OHW but could accommodate vegetated slopes. The 1.5:1 option would have less impact below OHW but would have large stones (Class D, 2 to 3 feet in diameter) on the slopes and be less easily vegetated. Mark Kern prefers vegetated slopes in general. Gino Infascelli noted that exposed rock could result in higher temperatures of runoff into the water, and Pierce Rigrod stated that higher temperatures and turbidity could contribute to blooms which regularly occur in the water body. Mark Hemmerlein asked if the roadway could be shifted further east and the west bank left intact (or vice-versa). This will be investigated. There was no clear consensus on which option the agencies would prefer.

There was a question about the relative mitigation costs, and why there were not greater differences among options. Jed Merrow had previously discussed cost calculation methods with Lori Sommer and the costs are based on linear foot rather than square footage. After the meeting, Mr. Merrow determined that costs had been calculated using $490 per linear foot for impacts both above and below OHW, and $250 per linear foot for impacts above OHW only.

There was a question whether expanding and restoring the channel under the bridge would have some mitigation value. The new abutments would be constructed behind the existing abutments, then the existing abutments would be cut off or removed, and an embankment constructed. The composition of the embankment has not been addressed yet. Restoration value might depend on how it is constructed, but it would most likely simply be replacing what will be removed.

There were also questions about stormwater management, including highway runoff and spill protection. This has not yet been designed but, considering the water supply, will be an important consideration. There will be curb and guard rail, so closed drainage is feasible.

Mr. Rigrod inquired about construction impacts and the duration of construction in the water. These details will not be addressed till later in design, but is an important consideration for this project. Environmental commitments could be made pertaining to BMPs for this area if necessary.

Because water flows east and there are intakes downstream, impacting the west or upstream side could be desirable, but it was not clear whether this would have any effect on long-term impacts. Mr. Rigrod asked if Pennichuck Water Works (PWW) had been consulted. Mr. Merrow had spoken with PWW's Don Ware, who had expressed particular interest in the bridge impacts, construction impacts, and stormwater treatment. Mr. Ware noted that they constructed a stormwater basin in the Tinker Road area, upstream of a major intake, two years ago. This is near the southern terminus of the project.

The Baboosic Brook crossing was discussed. Alternatives 1, 2 and 3 involve replacing the culvert with new or extended culverts. The 100-year flood would overtop each of these designs by 6 to 7 feet. The NHDOT thinks this is unacceptable and has set 1 foot of freeboard (space above the flood elevation within the structure) as the minimum acceptable.

Providing 1 foot of freeboard requires a bridge structure and raising the elevation of the roadway. Alternatives considered include 90-, 60-, and 66-foot spans with or without sloping embankments in the structure. (Eliminating sloping embankments provides more flood capacity, which in turn allows the bridge and highway to be lower). Alternatives 4a, 5a, and 6 would have full height abutments without sloping embankments. They would result in only a slightly lower roadway profile, would lack stream

banks within the structures, and would cost more than alternatives with sloping embankments. Therefore, they are proposed to be eliminated from consideration.

Alternative 4b would have a 90-foot span and Alternative 5b would have a 60-foot span, and both would have sloping embankments. Alternative 5b would accommodate the full bankfull width (times 1.2 plus 2 feet) along with wildlife shelves on each bank, is substantially less costly than Alternative 4b, and would allow a smaller highway profile change. Alternative 5b is therefore the preferred design. There was general agreement with this conclusion.

This project has been previously discussed at the 10/19/2016 and 11/16/2016 Monthly Natural Resource Agency Coordination Meetings.

Cutts Cove Advanced Mitigation Discussion Update (Portsmouth, #15731)
Federal highway is interested in having input from other Natural Resource Agencies on the NHDOT's proposal for advance mitigation payment to the UNH ARM fund grant. UNH has received an ARM fund grant to place oyster shell substrate and restore 200 feet of living shoreline within Cutts Cove. Their application originally had asked for 800 feet of living shoreline restoration. If NHDOT can provide additional advanced mitigation of $200,000 dollars, UNH would be able to complete the remainder of the 800 feet of mitigation and conduct years 1 and 2 of monitoring underneath that figure. Federal highway has said that they would like support and/or concurrence that other agencies want to move forward with this effort. Federal highway would then supply NHDOT with a letter stating that this is low risk, and NHDOT, under functional replacement of the NH Port, would have at least $200,000, possibly up to $600,000, of mitigation effort/funds that would be a credited towards this advanced mitigation.

Lori Sommer added that NHDES is supportive of this and there have been many conversations in her office about it. She said that NHDES has sat down with Bob Landry and others to discuss how this could be budgeted.

Mark Kern added that Mike Johnson and he have been supportive of this the whole time. It is logical, low risk and he is happy to raise his hand or do whatever to show their support. L. Sommer stated that in her last meeting/discussion with Mike Johnson, she thought that he was somewhat quiet after many questions and she interpreted that as him considering this to be reasonable. L. Sommer talked to Fred Short after that meeting that water quality is improving in the area and that they should start thinking of locations for eel grass re-establishment. M. Kern said he is slightly suspicious just because it is so hard to predict water quality in the Piscataqua River area and whether this is going to work long term. All of the plantings EPA did 18 years ago for the Port Authority mitigation are gone and none of it survived. He would hate to invest a lot of resources into that effort without being pretty sure it is going to work.

Mike Hicks asked if some of the species ever comes back all of a sudden, if they are absent for a few years then come back, but he reiterated that this is probably very difficult to predict. L. Sommer added that there is also water clarity issues in that water and appropriate depth issues.

M. Kern added that 90% of eelgrass in this area is gone, there are only a few patches hanging on. As long as we don't invest too much money into it and Mike Johnson wants it, it's fine. Fred Short

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: Monthly SHPO-FHWA-ACOE-NHDOT Cultural Resources Meeting
DATE OF CONFERENCES: March 9, 2017
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT	Edna Feighner	**IAC**	Christian Rainey
Ron Crickard		Jacob Tumelaire	Lisa Martin
Jill Edelmann	**FHWA**		
Jon Evans	Jamie Sikora	**MJ**	**Preservation Co**
Bob Hudson		Stephen Hoffmann	Lynne Monroe
Kerry Ryan	**Hoyle Tanner**	Jed Merrow	Reagan Ruedig
	Sean James		
NHDHR	Kimberly Peace	**Quantum**	
Laura Black		Jim Bouchard	

PROJECTS/PRESENTATIONS REVIEWED THIS MONTH:
(minutes on subsequent pages)

Ossipee 23818, X-A002(771)
Participants: Sean James, Kimberly Peace, HTA; C.R. Willeke, NHDOT

Continued consultation to provide update regarding Phase III of the Whittier Covered Bridge Project Phase III in Ossipee.

S. James shared a PowerPoint presentation for the project. Phase I of the project included State and Town funding and included moving the bridge off the abutments as it was in danger of collapse. Phase II was a Federal, State and Town funded Design-Build rehabilitation of the bridge while it was located on the approach roadway and is nearly complete. Phase III (current phase) is a Federal, State and Town funded project to replace the bridge over the river and complete stream restoration.

The existing abutments will be retained with the following work proposed: chinking, adding a one to two foot cap to the top to raise the elevation of the bridge, partial reconstruction of the arch supports and stream bank restoration at the south abutment. K. Peace described the proposed stream bank restoration which was designed by Headwaters Hydrology, PLLC and includes installation of gravel and stone fill around the south abutment with a new floodplain bench and plantings. This work has previously been presented at a NHDOT Natural Resource Agency meeting. The addition of lighting inside the bridge and possible effects to bats was discussed. This topic is being discussed with USFWS and no decision has been made whether lights will be

Bridge replacement Alternative 1 is an option for phased construction by constructing the northbound barrel over the existing bridge while maintaining northbound traffic on the existing bridge. US Rte. 3 southbound traffic would be detoured over McGaw Bridge Road & Wire Road. This would allow for half the bridge to be built while traffic still travels half the existing roadway. Upon completion of the new northbound barrel of the bridge, traffic would then be diverted to the other half of the bridge while the existing bridge is removed and the balance of the new bridge is built. This alternative raises the roadway profile at the bridge by approximately 3 feet.

Alternative 2 discussed by J. Bouchard was for construction of the new bridge offline and downstream of the existing bridge. This alternative also includes raising the roadway profile for the bridge as to remove the existing low point on the bridge (as is the current scenario). This alternative could be founded on either piles or stem walls, depending on boring information. The intent of this alternative would allow traffic to remain on the existing bridge during construction. After completion, traffic would be moved to the new bridge followed by removal of the existing bridge and roadway.

Alternative 3 being evaluated is for construction of the replacement bridge on-line adjacent t the present location. This bridge would again raise the roadway profile to move the low point off the bridge. This alternative would require a temporary 2-lane detour road/bridge to be placed on the downstream side of the existing bridge.

J. Bouchard noted that we are aware of the need to continue the historical documentation on the Pyneburg parcel and undertake inventories for the structures fronting the project area on US Rte. 3, Wire Road and Twin Bridges Road.

E. Feighner noted that the project would probably need archeological input no matter which alternative was chosen and that it would be best to get someone out to the site soon. It was further noted that archaeological surveys should also encompass the eroding embankment on the northeast corner of the existing bridge. QCC noted that archaeological surveys will be undertaken. Above-ground inventory should also be conducted, as noted on the RPR response.

J. Bouchard then noted that this project is slated for construction in funding year FY 2023 and that there are gas, water, and telecommunication lines under the existing road in the location of the bridge that will have to be maintained during construction.

R. Crickard then asked if it would be in the Town's interest to have a shorter span bridge option to minimize impacts to nearby properties. J. Bouchard responded that all the bridge replacement alternatives have been developed to minimize impacts to the Pyenburg property so as to match proposed grading into the existing and no to disturb the existing interface with the road and property features, i.e. former concrete gas island.

Nashua-Merrimack-Bedford, 13761
Participants: Jed Merrow, Stephen Hoffmann, MJ; Jacob Tumelaire, IAC; Lynne Monroe, Reagan Ruedig, Preservation Company; Jon Evans, Ron Crickard, NHDOT

Initial consultation to introduce the project, archeological Phase 1A/1B findings and proposed additional work, present historical resource data collected and define the next steps needed to determine eligibility and effects.

This project involves widening approximately 8 miles of Everett Turnpike from two lanes to three in each direction. While there is no federal project number, FHWA does have project oversight. The purpose of this agenda item was to initiate consultation with the cultural resource agencies, introduce the project, archeological Phase 1A/1B findings and proposed additional work, present historical resource data collected and define the next steps needed to determine eligibility and effects.

Jed Merrow introduced the project and described the three sections of the proposed F.E. Everett Turnpike widening project. Mr. Merrow also mentioned the proposed extension of the northern segment to include the widening the southbound (west) side of the turnpike by an additional travel lane, north to Exit 4.

Jacob Tumelaire, Independent Archaeological Consulting, LLC (IAC) presented the Phase 1A/1B archaeological findings. A total of five sites were identified along the project corridor including the Cinemagic Isolated Find, Narrow Ridge Site, Naticook Brook I and II Sites, and the Bowers Pond Isolated Find. At the Naticook Brook I site a thermal feature, stone gouge, and stone flakes were discovered. A red chert flake was also discovered at this location, indicating a paleo site. Stone Flakes were also found at the Naticook II Site. A Phase II archaeological survey is planned at the Narrow Ridge and Naticook I and II Sites. Mr. Tumelaire indicated that additional Phase 1B testing would be required at the Bowers Pond location. Mr. Tumelaire noted that soils within the existing cleared highway corridor were significantly disturbed, however, just inside the tree line areas remained relatively undisturbed. IAC will prepare a combined 1A/1B report.

Edna Feighner, Archaeologist and Review Compliance Coordinator, NH Division of Historical Resources, concurred with these findings and the additional proposed work.

Jed Merrow discussed the RPR and the potentially historic structures identified within the Area of Potential Effect.

Laura Black, Special Projects and Compliance Specialist, NH Division of Historic Resources, stated that she had reviewed the RPR, and was unable to determine which properties would need to be inventoried at this time. Ms. Black indicated that more detailed information regarding impacts at specific locations would be required, and additional individual property inventories and historic district area forms may need to be completed. Ms. Black stated that there was potential for direct impacts such as stormwater treatment areas, but likely the majority of potential impacts would be indirect impacts such viewshed, atmospheric, noise, related to turnpike widening and tree clearing.

Jed Merrow requested additional guidance on what would be considered an effect. Laura Black indicated that effects would have to be evaluated on a location by location basis. Jamie Sikora, FHWA concurred that it was dependent on setting, noise, and views at a particular location.

Given some of the questions that were raised about the potential effects of noise, Jon Evans, NHDOT's Air and Noise Program Manager, provided some background regarding highway traffic noise. Mr. Evans noted that because of the nature of noise, differences of less than 2-3 decibels are

generally considered imperceptible to the human ear, while differences of 3-5 decibels are considered barely perceptible and differences greater than 5 decibels are considered noticeable. He noted that in order for there to be a noticeable difference in noise, at least 150-200 feet of very dense vegetation would need to be removed between the highway and a nearby property. Similarly, doubling or halving the distance from the roadway to an adjacent property results in a barely perceptible difference in noise of approximately 3-5 decibels. Mr. Evans also noted that doubling the traffic volume on the roadway would also only result in about a 3 decibel increase in noise. Mr. Evans indicated that although noise impacts in excess of the Federal Highway Administration's Noise Abatement Criteria are known to exist currently within the project corridor, the likelihood of noticeable changes in noise resulting from the proposed project was extremely unlikely.

Mr. Evans added that although this is a roadway-widening project the existing right-of-way is large enough throughout the majority of the corridor to accommodate for the additional lanes. As such, very few property impacts outside the limits of the existing right-of-way are anticipated and any such impacts are anticipated to be mostly associated with the installation of water quality treatment measures and soundwalls.

Ms. Black suggested developing a scope to determine which properties may require additional survey, given the potential for a variety of impacts along the project corridor. The project is expansive and not all impacts were identified in the RPR. Certain properties, for example, were left as unknown at the time of submission. Rather than rely on the DHR for project scoping, the team should develop an appropriate scope of inventory, or reasons for not doing inventory work at any given location, generally based on a version of risk management, balancing all potential impacts to a property, integrity of resources in question, and possibility of having to make uninformed decisions at various steps of project design.

Lynne Monroe, Preservation Company, asked if there was any precedent for this type of project, and identified tree clearing was not a concern for similar projects such as the I-93 and Newington-Dover projects. Mr. Evans stated that the guidance from DHR, particularly as it relates to indirect impacts appeared to deviate from the approaches taken for similar large projects such as the I-93 and Newington-Dover projects.

Submitted by: Sheila Charles and Jill Edelmann, Cultural Resources

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: May 17, 2017
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Steve Johnson
Mark Hemmerlein
Jason Trembley
Wendy Johnson
Jim Kirouac
Joseph Adams
Michael Licciardi
Jonathan Hebert

Federal Highway Administration
Jamie Sikora

ACOE
Rick Kristoff

US Coast Guard
Jim Rousseau

NHDES
Gino Infascelli
Lori Sommer
Eben Lewis

NHF&G
Carol Henderson

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
Jim Murphy
Dan Hageman
Stephanie Dyer-Carroll
Mike Long
Dave Kull
Steve Hoffmann
Ben Martin
John Parrelli
Sean James
Kimberly Peace

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

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

Plainfield 162/100, NH Route 120 over Bloods Brook
The proposed work involves placing stone on both abutments, and both upstream wing walls. Access will be from the easterly upstream bank. The NH Wetlands Bureau indicated no mitigation was necessary for the work and the ACOE confirmed this work would qualify under the PGP.

Westmoreland 109/124 NH Route 63 over Mill Brook
The proposed work involves placing stone on the southerly upstream wing wall. Also included are five bendway weirs to address severe erosion on the southerly upstream bank. Gino commented that the bendway weirs looked like they needed to be turned upstream more and requested we coordinate with USGS on the fluvial geomorphology. The group agreed this was a good approach to address the scour at this location. Access will be from the southern upstream bank. The NH Wetlands Bureau indicated no mitigation was necessary for the work and the ACOE confirmed this work would qualify under the PGP.

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

Nashua-Merrimack-Bedford, #13761 (IM-0931(201)
This project involves widening approximately 7.5 miles of Everett Turnpike from two lanes to three in each direction. The purpose of this agenda item was to discuss the ongoing alternative analysis of the Pennichuck Brook crossing and reach a concurrence on a preferred alternative, and to introduce the alternatives developed for the Naticook Brook crossing.

Due to recent project developments, Mr. Evans informed the group that the Naticook Brook alternatives would not be presented and discussed during this meeting.

Pennichuck Brook Alternatives 2, 4, 5, 6, and 7 had been discussed at the October 19, 2016 meeting, and it was agreed at that time that they could be eliminated from further consideration.

A new alternative (Alternative 8) for the Pennichuck Brook crossing was developed through comments and discussion that occurred during the February 15, 2017 meeting. This alternative involves a 19-foot shift of the roadway centerline to the east. This shift will eliminate impacts to the causeway and Pennichuck Brook on the west side of the Everett Turnpike. Alternative 8 consists of 2:1 vegetated side slopes, with approximately 24,700 square feet of impacts below ordinary high water, with an estimated construction cost of 6.7 million dollars. This alternative has significantly lower impacts to lands below ordinary high water in Pennichuck Brook as compared to Alternatives 1 and 3 with similar 2:1 side slopes. Alternative 8 is also the cheapest option, due to a reduction in environmental mitigation costs.

A question was asked regarding the construction sequence. Mr. Kull explained that the project would be constructed in a 3-phase approach over three construction seasons. First, two lanes of the new bridge would be constructed east of the existing bridge. In the second phase NB traffic would be moved to the newly constructed roadway and the existing southbound bridge would be replaced,

and in the third phase SB traffic would be moved to the new roadway and the existing northbound bridge would be replaced.

Ms. Sommer inquired as to which construction phase the impacts to lands below ordinary high water would occur. Mr. Kull indicated that these impacts would occur during the first phase.

Mr. Urban asked about placing stone fill around the new abutments. Mr. Kull explained that the proposed abutments will be founded on piles driven to bedrock at a depth of approximately 35 feet. The proposed abutments will be set behind the existing ones, and the proposed span length will be increased from 85 to approximately 100 feet.

Mr. Infascelli noted that Alternative 8 minimizes the linear feet of shoreline impacts along Pennichuck Brook, which is a significant benefit.

Ms. Sommer asked whether wildlife shelves would be included in the design. Mr. Kull stated that the 2:1 side slopes would be vegetated, and the intent is to include a wildlife shelf around the causeways and underneath the proposed structure.

Mr. Evans confirmed that there was general agreement that Alternative 8 would move forward as the preferred alternative for the Pennichuck Brook crossing.

This project has been previously discussed at the 10/19/16, 11/16/16, and 2/15/17 Monthly Natural Resource Agency Coordination Meetings.

Nashua Heritage Trail to Mine Falls Park Connection, #40429 (X-A004(400)

The Department of Transportation held a natural resources meeting to review upcoming projects. Hoyle, Tanner personnel presented the above-listed project:

The proposed project is intended to connect two existing recreation trails, the Heritage Rail Trail and the Mine Falls Park trails, with a safe, low maintenance trail and pedestrian bridge. The proposed trail consists of an ADA complaint ramp from the Heritage Trail to an at-grade path along the western side of Everett Street. This path will cross Ledge Street to access the small existing park between Ledge Street and the Nashua Canal. A short section of proposed concrete sidewalk will transition from the existing brick pavers in the park to the proposed prefabricated steel truss pedestrian bridge. The proposed pedestrian bridge is a 90-foot single span structure that crosses the Nashua Canal and connects to the existing Mine Falls Park trail system. The proposed span length was selected to avoid wetland and wetland buffer impacts. The bridge will be founded on helical pile supported cast-in-place concrete stub abutments in which helical piles were selected in part to reduce the excavation area and depth required to install the abutment on the existing earthen embankment on the west side of the canal. Actual equipment used for bridge construction is part of the Contractor's means and methods of construction, however it is anticipated that the equipment to be used for bridge installation includes excavators, helical pile installation vehicles, concrete trucks, and cranes to install the proposed prefabricated pedestrian bridge. All equipment will be located beyond the wetland buffer and behind erosion control measures. The proposed changes to the existing topography include the ADA compliant ramp at the south end of the project at the Heritage Rail Trail, the short section of concrete sidewalk and the plan area of the proposed bridge and abutments. The remainder of the project is constructed at-grade on top of existing impervious surface area. As such, no changes to existing natural drainage or existing closed drainage systems are anticipated.

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MEETING NOTES

PROJECT: Nashua-Merrimack-Bedford 13761
F.E. Everett Turnpike Project
(MJ Project No: 18021.00)

DATE OF MEETING: June 14, 2017

LOCATION: NHDOT Bureau of Environment Conference Room

SUBJECT: New Hampshire Fish & Game Meeting – minutes

ATTENDEES:

NH F&G: Mike Marchand

NHDOT: Wendy Johnson, Jon Evans

MJ: Jed Merrow, Steve Hoffmann

CHA: Ben Martin

NOTES ON MEETING:

The purpose of this meeting was to discuss the preliminary impacts to rare species with New Hampshire Fish and Game, along with streams, wetlands and vernal pools, and to identify additional concerns regarding fish and wildlife.

Jed Merrow introduced the project and briefly described the proposed work. The project proposes to widen the segments that are two lanes in each direction to three lanes in each direction. Widening would occur both to the inside (toward the median) and outside of the two existing turnpike barrels. Mike Marchand asked about the roadway reconstruction and the limits of the work. Ben Martin explained that full depth reconstruction would only occur in specific locations where it was necessary. The FEET currently has a grass median with a guardrail in several locations. In these areas, the median likely will be replaced with Jersey barriers.

Mike identified two initial concerns: erosion control matting and detention basin outlets. Mike requested that wildlife friendly erosion control matting that does not have welded plastic netting be used wherever practicable, especially in areas where rare species are present. Mike also suggested that detention basin outlets be elevated and covered, or have an opening at the bottom to prevent wildlife from being trapped should they inadvertently enter the outlet structure.

A question was asked about the limits of impacts. Wendy Johnson clarified that in wetland areas the limits of impacts is the toe-of-slope, in non-wetland areas the limit of impacts typically includes a five-foot clearing zone beyond the toe-of-slope. Wendy also noted that in areas where impacts are a concern (e.g. rare species habitat) the construction plans can be revised to reduce the area of impact to the toe-of-slope.

Figures showing the preliminary slope lines, delineated wetland and waterways, and wildlife habitat information were reviewed starting at the southern end of the project. Natural Heritage Bureau mapping of rare species occurrences were simultaneously referenced. Mike commented that he had received an inquiry from the Natural Heritage Bureau in regards to displaying rare-species mapping on project figures. Mike stated that he was OK with this mapping being incorporated into planning level documents, as long as these figures and information were not presented to the general public.

Mike stated that a bald eagle nest is located on Pennichuck Brook and may be located east of the FEET.

A population of northern black racers was historically located northwest of the southern segment. Mike explained that this area was disturbed by the construction of the Merrimack Premium Outlets. Four radio-tagged snakes were relocated to a site in Hopkinton, but the relocated individuals did not survive the following winter. Mike speculated that racers may still be present in the vicinity, however the construction of the shopping area destroyed the one known hibernaculum that the snakes utilized.

Mike pointed out that there are incidental records of eastern hognose snakes along much of the project corridor. He suggested that an educational aspect be incorporated to inform construction crews to be able to identify eastern hognose snakes.

Mike confirmed that eastern hognose snakes have been documented in the vicinity of Horseshoe Pond, east of the southern end of the middle segment.

A record of a wood turtle is located near Naticook Brook in the southern end of the middle segment. Mike and Jed speculated that the turtle may have been using the Souhegan River or Merrimack River, as that portion of Naticook Brook does not appear to provide suitable overwintering habitat.

A Blanding's turtle was found near a large open water wetland north of the Souhegan River. This area is also a vernal pool that contained wood frog egg masses. There are currently some wetland impacts proposed in this area, but given the quality of the habitat and possible presence of rare species, efforts will be made to avoid impacts.

Jed discussed the preferred alternative for the Baboosic Brook crossing, which includes the replacement of the existing 15-foot twin box culverts with a 60-foot bridge structure. This alternative was previously presented to representatives from NH F&G at a Natural Resource Agency Coordination meeting. A wildlife shelf is also planned to be incorporated based off previous correspondence with NH F&G. Mike explained that a wildlife shelf was beneficial as long as it did not detract from aquatic organism passage. He suggested using natural materials,

with a tapered slope into the water rather than a concrete shelf with 90 degree angles that could become perched during low flow conditions.

Mike commented that New England cottontails could potentially occur in this area, especially in patches of dense shrubby vegetation.

Mike asked about the construction of noise walls and installation of Jersey barriers in the median as a barrier to wildlife crossings. Jed explained that habitat connectivity at the landscape level had not been analyzed at this time.

Mike explained that Dumpling Brook Wildlife Management Area has been actively managed for New England cottontail habitat. He also identified utility rights-of-way as potential habitat for both eastern hognose snakes and New England cottontail.

Mike said that brook floater has been found in the Merrimack River and larger tributaries such as the Piscataqua, however, there are no occurrences in the project area including the Souhegan River or Baboosic Brook, and no need to survey for brook floaters in those waterways.

Mike stated that bald eagles have been observed nesting on Pennichuck Brook and the Merrimack River, and that wintering activity is common along the Merrimack River. Jed asked whether there was any documentation of roost trees along the FEET and Mike explained that the records were typically along the riparian corridors.

The potential northern extension of the project on the southbound barrel and McQuesten Brook were discussed briefly. There is not currently consensus within NH F&G regarding the benefits of restoring stream habitat connectivity along McQuesten Brook under the turnpike.

Mike requested a summary and photos of the stream crossings to provide the fisheries department with more specific information, as well as a summary of dense shrubby habitat (potential New England cottontail habitat) along the project corridor.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: December 20, 2017
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Mark Hemmerlein
Victoria Chase
Rebecca Martin
Jason Tremblay
Kirk Mudgett
Keith Cota
Marc Laurin
Chris Carucci
Jennifer Reczek
Jon Hebert
Wendy Johnson
Jon Evans

ACOE
Mike Hicks

EPA
Mark Kern

Federal Highway
Jamie Sikora

NHDES
Gino Infascelli
Lori Sommer

NHF&G
Carol Henderson

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
John Byatt
Jaime French
Henry Kunhardt
Christine Perron
Jed Merrow
Steve Hoffmann
Ben Martin
Kevin Thatcher

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

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

been identified in 2012. This species was not found at that location or in any other location reviewed during other field work. Habitat within clearing limits along the project was assessed and USFWS concurred that no further surveys were warranted.

Two NHFG properties will be impacted by slope work and the Department has been coordinating with Rich Cook. An existing 15" culvert outlets into the conservation land at Sta 5444+50. Discussion with NHFG indicated the easement language does not allow for extending the pipe, so it will be abandoned and the drainage will be shifted to the Mudgett Hill Road treatment area. The easement language does allow for slope impacts.

This project has been previously discussed at the 1/18/2017 and 8/17/2016 Monthly Natural Resource Agency Coordination Meetings.

Dummer, #16304A (X-A003(835))

Mark Hemmerlein opened the meeting by noting the last review was in Oct 2017. The Department had a public hearing and a few issues were raised by the public. The issues included a trail that runs along the river, the location of a few Osprey nests in the area, and their desire to maintain the view of the river from the roadway. The proposed design now impacts 6.85 acres of wetlands. At the last meeting there was a request for more information regarding the replacement of the 60" pipe that carries Robbins Brook under NH Route 16 within the project area with a larger more wildlife friendly bridge. Jennifer stated the estimate for the 12 foot span bridge was approximately $780K which included a natural bottom and wildlife shelf. Lori noted that cost estimates were previously requested for use during the site walk. Carol inquired about what other mitigation was considered. While in the field only the Robbins Brook crossing was investigated but in prior meetings about mitigation other alternatives were discussed. While in the field Gino Infascelli recommended that soil and vegetation from the wetland side could be used to re-vegetate the river shoreline. Mark described a proposed method of moving soil around the project while maintaining the mulch of the native root stock and existing seed stock in the soil to use for enhancing a water quality buffer and shoreline to the river. Lori and Gino both indicated that a construction sequence would be needed in the application to provide mitigation credit for the proposed river/vegetated buffer along the Androscoggin River. They also indicated it would only be 12% based on the proposed Total Suspended Solids removal. Mark indicated the project will also require a water quality certificate. Mark Kern noted the impact areas are to wooded wetlands and questioned how the cost of a bridge was thought to be mitigation. Gino indicated the replacement value for Robbins Brook culvert was questioned by the NHF&G field reviewers since there is an upstream constriction on NH Route 110A. Matt closed the meeting by indicating the mitigation would likely take the form of a $1.2M ARM fund payment and applications will be submitted in February 2018.

This project has been previously discussed at the 10/15/2014, 7/19/2017, and 10/18/2017 Monthly Natural Resource Agency Coordination Meetings.

Nashua-Merrimack-Bedford, #13761

The proposed project is anticipated to involve widening three segments of the Everett Turnpike, totaling approximately 8 miles, from two lanes to three in each direction. The purpose of this agenda item was to: present the preferred alternative of the Naticook Brook crossing; discuss preliminary wetland impacts with

a focus on the higher value, more significant resource areas (e.g. streams and vernal pools) found throughout the project corridor; and present proposed stormwater BMP and noise wall locations.

Mr. Merrow provided a brief overview of the project before beginning the wetland impacts discussion. Starting from the southern terminus of the project and continuing north, figures displaying the project area, delineated wetlands, slope lines, noise walls, stormwater BMP areas, and wetland and stream impacts were presented. In the southern segment, there are limited impacts to wetlands with the exception of Pennichuck Brook. The Pennichuck Brook area had been discussed in depth at previous Natural Resource Agency Coordination meetings and a preferred alternative has already received concurrence.

Three noise walls are proposed just south of Exit 11 and the southern end of the middle project segment. Mr. Merrow pointed out a large wetland and stream in the vicinity of the noise wall to the west, and noted that at this time impacts are expected to be avoided.

Continuing north along the project corridor, Mr. Merrow pointed out an area of wetland impacts located on the west side of the Turnpike near the Cinemagic movie theater in Merrimack. This wetland area is believed to be a vernal pool due to unknown ambystomid salamander egg masses that were documented during a spring 2017 vernal pool survey. Mr. Merrow stated that impacts can likely be avoided to the wetland at this location. However, another concern is the clearing of forested habitat south of the pool for the installation of a stormwater BMP.

Mark Kern asked for clarification on the species of salamander eggs that were found in this pool, and Mr. Merrow replied that it was most likely either blue-spotted, Jefferson or a hybrid of the two species.

Mr. Martin presented the alternative analysis for the Naticook Brook crossing. Naticook Brook is a Tier 3 perennial stream, with a 2,028-acre watershed. The structure currently consists of a 60” concrete culvert that is hydraulically undersized based on the hydraulic analysis that was completed. The existing culvert is also shared by a sewer pipe that was installed sometime in the early 1980s. The replacement of this culvert is further complicated by 45’ of overburden above the existing culvert and the alignment of the existing stream channel.

Mr. Martin presented three alternatives for the culvert replacement. Alternative 1 includes a supplemental 60” culvert that would be installed parallel to the existing culvert using directional boring methods. The existing 60” culvert would remain in place. This would meet the hydraulic requirements but would not address the NH Stream Crossing Guidelines. Alternative 2 consists of a 90” RCP culvert imbedded 2 feet to allow for a natural substrate bottom. This culvert would be skewed and the existing 60” culvert would be abandoned. This alternative could be installed using either trenchless directional boring (Alternative 2B) or an open cut (Alternative 2A). Alternative 3 is a three-sided bridge structure with a 20’ span and 5’ rise. The preferred alternative based on the cost, and constructability is Alternative 2B. There seemed to be general concurrence that this was the most reasonable alternative.

Mr. Merrow pointed out a downstream segment of Naticook Brook that would be filled and require realignment, noting that this portion of the stream had some scour and erosion issues. Mr. Urban asked if slopes in this area could be steepened to 1:1 or retaining wall used to avoid impacts. Mr. Martin explained that the current meander in the channel is currently at the existing toe-of-slope, and that impacts to the channel are unavoidable even if the slopes are steepened.

Mr. Merrow continued the discussion on wetland impacts, indicating that there are no impacts proposed at the Souhegan River. There is another large semi-permanent vernal pool wetland located north of the Souhegan River on the west side of the Turnpike. Wood frog egg masses were identified in this pool.

NHB identified a record of an individual Blanding's Turtle being found on the Turnpike in the vicinity. There are minimal impacts proposed with 2:1 slopes and guardrail. Mr. Kern asked about drainage and runoff at the location of the pool, and if it would be possible to direct drainage away from this pool to reduce the chloride loading from runoff.

Mr. Urban mentioned that bird's foot violet has been transplanted and is located in the vicinity of the BMP areas near the Souhegan River.

Mr. Merrow introduced the next wetland impact area located near the Baboosic Brook/Wire Road crossings. This area included a small intermittent and a possibly perennial stream with fringe wetlands. The intermittent stream flows east to west underneath the Turnpike, before flowing to the north, parallel to the Turnpike. This intermittent stream joins a small, possibly perennial stream that flows from west to east under the Turnpike before flowing into Baboosic Brook. The intermittent stream on the west side of the Turnpike would require realignment. Mr. Urban asked about the existing channel conditions and if these would be recreated in the constructed channel. Mr. Merrow indicated that a channel with natural substrate and meanders would likely be constructed.

Mr. Merrow also indicated that the final recommended alternative for the Baboosic Brook crossing is still under development, so the impacts associated with this location are not known at this time. These will likely be addressed at the next resource agency meeting. North of Exit 12 there are some fringe wetland impacts but measures have not been taken to avoid these impacts because the wetlands are moderate to low quality and the impacts are relatively minor.

Dumpling Brook is a small perennial stream with a 300-acre watershed. At this location, a pipe extension is proposed on the west side, and on the east side impacts may be avoided by steepening the slopes and installing guardrail. Mr. Sikora asked about the potential noise wall that is shown at this location and how it will tie in. This issue will be addressed as the noise wall design moves forward. Mr. Urban asked about the reasoning for the pipe extension on the west side. Mr. Martin explained that on the west side the pipe extension follows the existing channel, and no guard rail is proposed in the immediate vicinity. However, on the east side an extension is not feasible because the configuration of the channel and existing topography would require extensive earth work. Guardrail is proposed nearby and can be extended to the stream crossing.

Mr. Merrow mentioned that in the area of the I-293 interchange there are some fringe wetland impacts. The existing slopes are relatively steep and high and therefore avoiding these impacts would be difficult. There is an unnamed perennial stream in the northern section south of the I-293 interchange. A pipe extension on the upstream (west) side would be difficult due to the presence of bedrock and a 3-4 foot drop before entering the culvert. Mr. Urban noted that this is a very flashy stream, likely due to the amount of impervious surface in its watershed. The existing culvert is a 72" pipe that has had some recent work done. It meets the hydraulic requirements.

Mr. Merrow described the overall approach to stormwater management and Mr. Thatcher discussed specific stormwater BMP areas. There are three areas where no treatment was possible; these included the Souhegan River, Baboosic Brook, and Dumpling Brook. Mr. Thatcher discussed the typical BMP layout and design. Wet Extended Detention Basins with sediment forebays will be used.

Mr. Merrow indicated that the total area of wetland impacts is expected to be within the 2-3 acre range. If so the project will likely qualify for the Section 404 Programmatic General Permit.

Mr. Urban recommended collecting sufficient data on existing stream channel conditions including longitudinal profiles and cross sections, particularly for areas where realignment is proposed. (It was later determined the consultant collected bankfull widths and depths at stream crossings. Channel profiles and cross sections will be determined during final design.)

Ms. Lamb expressed her concern for rare plant species and stated that avoidance measures are preferable to relocation, and recommended that surveys occur as early on in the project as possible (this season). Ms. Lamb also expressed concerns about exemplary natural communities located in low points and if stormwater BMPs or untreated stormwater would impact these areas, and if alternative stormwater BMPs were possible. The project team will consider whether stormwater may affect exemplary natural communities, and if so, will look into design alternatives.

Mr. Hicks mentioned that floodplain impacts still needed to be addressed. The project team will be quantifying floodplain and floodway impacts.

This project has been previously discussed at the 10/19/2016, 11/16/2016, 2/15/2017, and 5/15/2017 Monthly Natural Resource Agency Coordination Meetings

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: February 21, 2018
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Steve Johnson
Doug Locker
Tobey Reynolds
Rebecca Martin
Leah Savage
Zachary Schmidt
Trina Russo
Don Lyford
Bill Saffian
Trent Zanes
John Butler
Joe Adams
Marc Laurin
Wendy Johnson
Jon Evans
Kevin Nyhan
Kirk Mudgett
Mark Hemmerlein
Ron Kleiner

ACOE
Rick Cristoff

EPA
Mark Kern

Federal Highway
Jamie Sikora

NHDES
Gino Infascelli
Lori Sommer
Tim White

NHF&G
Carol Henderson

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
Christine Perron
Brian Colburn
Jennifer Zorn
Ed Weingartner
Vicki Chase
Christopher Fourneir
Jed Merrow
Kevin Thatcher
Bill Ashford

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PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

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

Nashua-Merrimack-Bedford, #13761

This project is anticipated to involve widening three segments of the Everett Turnpike, totaling approximately 8.1 miles, from two lanes to three in each direction. The purpose of this discussion was to: present the overall wetland and waterway impacts; present vernal pool impacts; and present the proposed water quality treatment strategy.

Jed Merrow provided a brief overview of the project. Overall wetland and waterway impacts would include the following:

- 0.83 acres of permanent palustrine wetland impact, mostly fringes of wetlands along the highway
- 0.72 acres (1,433 linear feet) of permanent channel impact
- 0.27 acres (1,098 linear feet) of permanent bank impact
- 0.21 acres (201 linear feet) of temporary channel impact
- 0.002 acres (10 linear feet) of temporary bank impact

No impacts to the Souhegan River are anticipated. Lori Sommer noted that ditches, if replaced, may not require mitigation.

Parts of four vernal pools would be directly impacted. It was noted that vernal pool impacts should be evaluated separately from other wetland impacts, and there are a couple of different ways it can be addressed. There are also different mitigation ratios for vernal pool impacts. Ruth Ladd (Corps) may be the best authority on this subject.

Mark Kern asked about the effect of salt on vernal pools. J. Merrow said they have not yet looked at stormwater runoff effects on vernal pools but it will be looked at.

There was a question about the Pennichuck Water Works water supply intakes with respect to the project. J. Merrow said the main intake is downstream of the Turnpike's Pennichuck Brook crossing.

J. Merrow indicated the proposed Baboosic Brook structure would be a 66-foot bridge which would span 1.2 times the bankfull width and include wildlife shelves on each slope.

J. Merrow discussed water quality treatment. He noted that the DOT would comply with the requirements of the 2017 *General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems* (MS4 General Permit) to the extent practicable. The MS4 General Permit indicates that all new development and redevelopment projects should either treat the Water Quality Volume or remove 80% of total suspended solids and 50% of total phosphorus. The DOT will try to achieve this by constructing extended detention basins wherever feasible along the Turnpike. There are currently 20 basins proposed treating about 71% of runoff, and 5 locations where treatment is not feasible. Design efforts are ongoing.

For chloride, DOT will follow guidelines for waterways that are impaired for chloride, although there are no streams currently designated as impaired for chloride. The MS4 General Permit requires a Salt Reduction Plan and certain BMPs to be followed. DOT is preparing a Salt Reduction Plan and already employs most of the specified BMPs.

J. Merrow noted that there is a commitment to conduct a survey for rare plant species along the corridor, so they can be avoided or mitigated as needed. Amy Lamb requested an aerial-based plan of the project area for rare plant habitat purposes. Regarding rare wildlife species, many of the species may be found in a variety of habitat types along much of the corridor. DOT proposes to implement construction measures to

avoid incidental take or impacting these species. Carol Henderson recommended further coordination with Kim Tuttle prior to construction.

This project has been previously discussed at the 10/19/2016, 11/16/2016, 2/15/2017, 5/15/2017, and 12/20/2017 Monthly Natural Resource Agency Coordination Meetings

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MEETING NOTES

PROJECT: Nashua-Merrimack-Bedford 13761
F.E. Everett Turnpike Project
(MJ Project No: 18021.00)

DATE OF MEETING: April 12, 2018

LOCATION: NHDOT Bureau of Environment Conference Room

SUBJECT: Cultural Resource Agency Coordination Meeting – DRAFT minutes

PROJECT REPRESENTATIVES:

NHDOT: Wendy Johnson, Jon Evans, Jill Edelmann, Sheila Charles

MJ: Jed Merrow

CHA: Bill Ashford

Preservation Company: Lynne Monroe

NOTES ON MEETING:

The purpose of this discussion was to discuss the material presented in the amended Request for Project Review submitted for the Everett Turnpike widening project. This material pertained to the improvements proposed at the properties along the turnpike with structures over 50 years old. Archeology was not addressed at this meeting.

Laura Black has reviewed the material and found the photos and captions helpful. She noted some possible indirect effects related to viewsheds, noise or atmospheric effects, smaller tree buffer. She believes no additional survey is necessary.

Ms. Black asked about detention basins within the Pennichuck Water Works land.

The Army Corps will be the lead federal agency. Mike Hicks indicated the Corps Section 106 jurisdiction would only occur where there are aquatic resources under their jurisdiction. He will review project mapping and determine what areas they have jurisdiction over. The Corps' Section 106 procedures are described in "Appendix C". The EPA may comment on findings.

Jon Evans asked about detention basins that outlet to wetlands. Mr. Hicks noted that if there is no wetland fill, they would be regulated only as indirect impacts.

Ms. Black asked whether state noise policy was stricter than federal. Mr. Evans responded that the state sets its own policy but it is consistent with federal guidelines. NH applies it to both federally funded and other highway projects.

Ms. Black noted that noise can result in indirect effects, and public concern is a factor. She suggested the Department may benefit from examining the effects of noise further.

Mr. Evans noted that noise impacts are defined in federal regulations. If such impacts are identified, noise abatement would be considered.

Lynne Monroe asked whether noise barriers could have an effect on historic properties. Ms. Black noted that a tree buffer would remain in most locations, and the setting is already a built highway landscape. Ms. Edelmann said she would consider properties over 50 years old where noise barriers are not proposed.

Mr. Merrow asked which agency will be making effects determinations. Where there is Army Corps jurisdiction, they will make the determinations. In other areas, the Department will make an opinion and consult with DHR.

Ms. Edelmann has developed a draft No Adverse Effects memo. Mr. Hicks will review project information and determine whether the Corps has concerns regarding Section 106 effects.

Submitted by:

Jed Merrow
McFarland-Johnson, Inc.

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

NASHUA-MERRIMACK-BEDFORD
13761

No Adverse Effect Memo

Pursuant to meetings and discussions on March 9, 2017 and April 12, 2018, and for the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C and NH RSA 227C:9 regarding the Preservation of State Historic Resources*; the NH Division of Historical Resources, NH Department of Transportation and the US Army Corps of Engineers (ACOE) have coordinated the identification and evaluation of cultural resources with plans to widen three segments of the F.E. Everett Turnpike (FEET) in the towns of Nashua, Merrimack and Bedford, New Hampshire.

Project Description

This project involves widening three segments of the FEET, totaling approximately 8 miles in length, from two lanes to three in each direction. The Area of Potential Effect extends approximately 300 feet from the centerline of the turnpike. The three segments include approximately 1.5 miles of the southern segment, beginning approximately 2,000 feet north of Exit 8 in Nashua, ending approximately 1,000 feet south of the Exit 10 overpass bridge in Merrimack. The middle segment runs for approximately 5.5 miles in Merrimack, starting approximately 3,500 south the Exit 11 overpass, includes the interchange at Exit 12 and ends approximately one mile south of the Bedford Toll Plaza. The northern segment begins approximately 0.6 miles south of the US Route 3 overpass bridge, running northerly for approximately 1.3 miles, ending at the northern limit of the I-293/NH Route 101 interchange in Bedford.

Although the Federal Highway Administration (FHWA) took interest in the undertaking due to its relation to the I-293 interchange, FHWA has since determined that they will not participate as a federal agency for this undertaking and as such the ACOE is the lead for their permitted areas.

Analysis

The FEET was reviewed in 2010 and was determined not eligible for the National Register of Historic Places. The Pennichuck Water Works (PWW) in Nashua was determined eligible for the National Register in 1993 and confirmed in 2003. Portions of the PWW are located within the Southern Segment, as it spans both sides of the FEET. There are three stormwater treatment areas proposed adjacent to and within the PWW property, in what is currently cleared ROW or undeveloped land.

An RPR addendum was submitted in March 2018 to NHDHR, and identified all of the structures located with the APE built prior to 1968. Comparing those properties to the proposed impacts, it has been determined that

all tree clearing and grading will occur within the turnpike right-of-way (ROW). All impacts are outlined in Table A1 of the RPR Addendum.

There are seven proposed noise barriers, ranging in height from 15-17 feet, proposed along the project. Of the properties that contain structures built prior to 1968, and are directly adjacent to the FEET, there are three individual properties (3 Gull Lane, 6 Camp Sargent Road, and 9 Smith Road) and one historic district (Bigwood Historic District) that would have noise barriers built adjacent to the properties. Tree clearing will be necessary for the installation of the noise barriers; however vegetation buffers will remain at these four noise barrier locations.

For the properties older than 50 years that abut the FEET where no noise barriers are proposed, tree cover will remain along Hoyt Street, Hillcrest Drive, Chamberlain Road, Wire Road, DW Highway, Harris Avenue, South River Road, Brookfield Drive, and Back River Road

There are a limited number of properties that abut the FEET that have limited vegetation buffers currently. There will be limited visual change at these locations, and noise analysis has shown that any noise decibel increases will likely not be noticeable. Properties include 15 Harris Avenue that currently abuts the northbound Exit 12 off ramp, 11 Sunset Avenue, 8 and 7 Priscilla Lane and 232 and 258 South River Road.

Other impacts that are adjacent to or need easements for properties along the FEET include tree clearing, stormwater treatment areas, and slope and grading work. All of the tree clearing, slope work and grading will take place within the ROW. There is one proposed stormwater treatment area that is adjacent to/and possibly within the parcel at 20 Wire Road. Tree cover will remain between the house and the proposed stormwater treatment location.

A Phase IA/IB Archaeological Investigation was completed along the project corridor and Phase II Determinations of Eligibility were completed at various location. It was determined that the Naticook Brook I Site is eligible for the National Register of Historic Places and is located within the APE. Should the site need to be impacted, NH Division of Historical Resources will be consulted and all necessary phases of archaeology will be completed.

Public Consultation

Town official meetings were held in each of the municipalities in 2016. Public meetings are scheduled March 29, 2018 in Bedford, April 3, 2018 in Nashua, and May 1, 2018 in Merrimack. Initial contact letters were sent to Land and Community Heritage Investment Program (LCHIP), Land and Water Conservation Fund (LWCF), Conservation Land Stewardship (CLS) programs. Continued consultation with the Pennichuck Water Works will continue throughout the planning process.

Determination of Effect

Applying the criteria of effect at 36 CFR 800.5, we mutually agreed that the proposed actions will not have an adverse effect on historic properties. The limited impacts to the Pennichuck Water Works Historic District will not impact any of the contributing features of the district. The stormwater treatment areas will further advance the roll that the Pennichuck Water Works plays in the watershed treatment area. The noise barrier that will be added adjacent to the Bigwood Historic District will not impact the character defining features of the district, and a tree line will remain between the district and the noise barrier. The other remaining properties that are

adjacent to the APE will retain their tree lines, and all slopework to be done will be within the ROW. No additional above ground survey is required and all necessary phases of archaeology will be completed.

The ACOE has reviewed the proposed plans in relation to their permit area and determined the project would not adversely affect historic resources.

In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

Jill Edelmann Date
Cultural Resources Manager

Concurred with by the NH State Historic Preservation Officer:

Elizabeth H. Muzzey Date
State Historic Preservation Officer
NH Division of Historical Resources

c.c. Mike Hicks, ACOE
Jon Evans, NHDOT
Wendy Johnson, NHDOT
Chris St. Louis, NHDHR

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