



ENVIRONMENTAL STUDY

**INTERSTATE 93
OPEN ROAD TOLLING CONVERSION PROJECT
HOOKSETT, 15803**

October 31, 2011

New Hampshire
DOT

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

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Introduction

The Central Turnpike, commonly known as the F. E. Everett Turnpike, extends from the Massachusetts state line in Nashua to Exit 14 in Concord. Its distance is 39.5 miles and, in part, constitutes a portion of US Interstate 93 and 293. It connects three urban centers in New Hampshire (the cities of Concord, Manchester and Nashua). The route also connects with the major east-west roads in New Hampshire (NH Route 101, US Route 4 and Interstate 89) (*Exhibit A*).

In October 2007, the Hooksett mainline toll plaza began serving *E-ZPass* patrons (*Exhibits B & C*). The plaza can operate with up to three dedicated *E-ZPass* lanes in each direction; however, vehicles equipped with *E-ZPass* transponders can use any lane. In the summer of 2009, numerous Turnpike initiatives were studied that would potentially increase revenue and/or reduce operating costs for the Turnpike and non-Turnpike highway systems. Implementing Open Road Tolling (ORT) was one of those considerations. Open Road Tolling allows vehicles with *E-ZPass* to pass through the toll plaza area and pay the toll while driving at highway speed. In July 2009, preliminary design began on a conceptual study to retrofit the Hooksett mainline toll plaza for ORT. In January 2010 the decision was made to proceed forward with the proposed action outlined in this document, which consists of the construction of four ORT lanes (two in each direction), and 12 conventional lanes (six in each direction) at the Hooksett Toll Plaza.

Open road tolling has already been successfully implemented at the Hampton toll plaza on Interstate 95. The Hampton toll plaza is located near the I-95/NH Route 101 Exit 2 interchange, and is the busiest toll plaza in New Hampshire's turnpike system during the summer months. Completed in 2010, Hampton was New England's first highway speed electronic tolling facility. The project converted six plaza lanes to four ORT lanes (two in each direction) while also adding one additional tollbooth in each direction.

This Environmental Study has been prepared using a systematic, interdisciplinary approach to assess the engineering considerations and environmental effects of implementing ORT at the Hooksett Toll Plaza along I-93.

Existing Conditions

The Hooksett Toll Plaza lies within the Exit 11 (Hackett Hill Road, NH Route 3A) interchange. It is a barrier plaza, consisting of 14 lanes, two of which are "reversible," making it possible to have a total of eight (8) lanes operating in one direction. Four (4) lanes are "convertible." Reversible means a northbound lane can be changed to a southbound lane, and vice versa. Convertible means a lane can be changed from processing *E-ZPass* transactions only to processing all transactions. The Exit 11 interchange provides access between Interstate 93 (I-93) and NH Route 3A via Hackett Hill Road. The interchange has a trumpet configuration with a toll facility located on the ramp access road. Opposite the ramp access road at its intersection with Hackett Hill Road is a 28-space park and ride facility. Within the project area, I-93 is generally a six (6) lane interstate highway with northbound and southbound traffic divided by concrete barrier or guardrail (*Exhibit NI*).

The original facility was built as a 6-lane plaza in 1957. The plaza has been widened twice since its opening, first in 1979, which expanded the plaza from six (6) lanes to 12, and then in 2006, which expanded the plaza from 12 lanes to today's 14.

The existing (2012) peak hour traffic volume approaches 5,000 vehicles per hour (vph), with 2% trucks. Currently, this toll facility experiences delays during peak hour traffic volumes resulting in lengthy backups. The current volumes are projected to increase to approximately 6,000 vph by the year 2022, which would substantially increase traffic queuing if not addressed. The posted speed limit along this section of interstate is 65 miles per hour (mph) maximum and 45 mph minimum, but is reduced to 35 mph as motorists approach and depart the plaza through the *E-ZPass* lanes. Vehicles are required to come to a complete stop when using the conventional/cash lanes.

Purpose & Need

The purpose of this project is to improve the capacity at the Hooksett Toll Plaza and eliminate long queuing and delays that occurs in peak periods, which leads to a high-speed differential between the queued vehicles in the cash lanes and the vehicles in the dedicated *E-Z Pass* lanes. Secondary benefits of the project include improving air quality in the region by reducing vehicle idle time following construction and reduction in energy/fuel usage associated with deceleration at the facility. A reduction in vehicular accidents is also anticipated at the toll facility upwards of 60% based upon documented results at other ORT facilities throughout the country. See the **Energy Needs** section for more information.

This project is needed as the existing toll plaza operates over-capacity, which causes long queues that exceed 2.5 miles (northbound on Friday nights, southbound on Sunday afternoons), especially during the summer months, and on weekends. This queuing exceeds the length the facility was designed to handle, which leads to speed differentials on the highway, causes driver angst and decreases air quality while traffic is queued approaching the plaza.

Proposed Action

The proposed action would consist of widening I-93 and retrofitting the existing toll plaza to accommodate ORT. The total project would extend approximately 5,000 feet north and 6,500 feet south of the toll plaza and is approximately bounded by Cross Road to the south and Pine Street to the north. Work would include the following:

1. The six center toll lanes (three in each direction) would be removed and four ORT lanes (two in each direction) will be constructed.
2. Widening of the approach roadways a maximum of 323 feet tapered into the existing roadway configuration at either end of the project.
3. Realignment of the Exit 11 ramps by a total of 3,100, to facilitate the mainline widening for ORT.
4. Rehabilitation of the I-93 bridge over Hackett Hill Road by replacing the 66' wide portion of the deck to accommodate the proposed ORT lane cross slopes, and reconstruction of the southeast and southwest wingwalls to accommodate the ramp realignment

5. Rehabilitation of the deck of the I-93 bridge over Ramp A-B (southbound ramps) by removing overburden and pavement and rehabilitating the deck as needed.
6. Extension of the existing pedestrian tunnel for toll attendants to safely access the outer toll booths.
7. Crash barrier would be constructed between the two opposing directions of traffic for approximately 1 mile north and 1.2 miles south of the plaza. Additional concrete barrier would be constructed to separate the high-speed lanes from the conventional toll lanes in the same direction.
8. Three water quality treatment areas would be constructed along the south side of the highway. These measures consist of three micropool extended detention basins: one just north of Cross Road, one just south of the I-93 southbound off ramp to NH Route 101, and the other just south of the NH Route 101 bridges over I-95 (*Exhibit L3*).
9. The existing toll facility would be rehabilitated.
10. Construction of maintenance ramps to facilitate plowing of the conventional plaza lanes by providing opportunities for snow plows to reverse direction.

Alternatives to the Proposal

“No-Build”

The “No-Build” alternative would provide no improvements to the Hooksett Toll Plaza. This alternative does not address the existing traffic deficiencies and the air quality impacts that result from queuing traffic. Given the projected increases in peak daily traffic volume, substantial increases in driver delay and air quality impacts would result. Projected growth of *E-ZPass* use alone is not likely to solve the plaza’s capacity constraints. Therefore, this alternative would not meet the project purpose and need. In addition, the impacts associated with the Proposed Action are not of a magnitude to warrant the selection of this alternative.

Lane Configuration Efficiency Improvements

Two options were evaluated to make more efficient use of the lane configurations available at the Hooksett Toll Plaza: making better use of the reversible lanes, and changing the mix of cash and *E-ZPass* lanes. After evaluation of lane configuration changes, it was determined that the toll supervisors, at present, are already making efficient use of the reversible lanes and the possible lane configurations. As such, this alternative would not meet the purpose and need, and was therefore not selected.

Operating Tandem Tollbooths

This alternative considered the extent to which toll plaza throughput could be improved by operating tandem tollbooths during peak periods. A tandem tollbooth consists of two toll attendants in a single lane serving alternating sets of vehicles simultaneously. Experience at other plazas suggests that tandem tollbooths could improve throughput by about 100-120 vehicles per hour per lane. However, tandem lanes are very labor-intensive (and therefore expensive), typically requiring three people per lane. To work effectively, they require a degree of experience on both the side of the toll collector, and the traveling public. Introducing tandem tollbooths alone at the Hooksett toll plaza would introduce some safety concerns since they could potentially be located adjacent to dedicated *E-ZPass* lanes. Tandem tollbooths are best employed when the plaza is operating just slightly over capacity and needs a modest boost in throughput to keep up with demand. The introduction of tandem booths alone would not mitigate the traffic queues experienced at the Hooksett Toll Plaza. As such, this alternative would not meet the purpose and need, and was therefore not selected.

Evaluation of Environmental Effects

The effects of the project relative to the following social, economic, natural and cultural resources/issues have been reviewed. Resources/issues that are not discussed in the body of the report were investigated; however, no impacts were evident. As such, these resources/issues are omitted from detailed discussion in this environmental documentation. The resources and issues deemed applicable for this project are indicated in bold type.

Resources/ Issues

	<u>Social/ Economic</u>	<u>Natural</u>	<u>Cultural</u>
Safety	Farmlands	Water Quality	Historical
Transportation Patterns	Community Services	Wetlands	Archaeological
Air Quality	Energy Needs	Surface Water	Stonewalls
Noise	Economic Benefit	Groundwater	Aesthetics
Displacements	Environmental Justice	Floodplains/Floodways	
Contaminated Materials		Wildlife	
Neighborhoods		Fisheries	
Business Impacts		Endangered Species	
Land Acquisition		Natural Communities	
Land Use		Invasive Plants	
Tax Base		Wild & Scenic Rivers	
Recreation		Stream Rechannelization	
Public Lands		NH Designated Rivers	
Construction Impacts		Forest Lands	
		Costal Zone	
		Shoreland	

Discussions of the effects on resources/issues in **bold** follow.

Safety

The existing toll plaza operates over-capacity, which causes long queues that exceed 2.5 miles (northbound on Friday nights, southbound on Sunday afternoons), especially during the summer months, and on weekends. The existing (2012) peak hour traffic volume approaches 5,000 vph, with 2% trucks. This volume is projected to increase to approximately 6,000 vph by the year 2022, which would substantially increase traffic queuing if not addressed.

The posted speed limits along this section of interstate is 65 mph maximum and 45 mph minimum, but is reduced to 5 mph as cash-paying motorists approach and depart the plaza, which would not change as a result of this project, except for the ORT lanes, which would remain at 65 mph maximum and 45 mph minimum.

Based upon studies completed at other ORT facilities (Pbs & J Engineering Consulta) in Florida, a potential reduction of up to 60% of vehicular accidents could be realized, reducing the 133 recorded crashes over the period from 2006 to 2010 to less than 80 over the 5-year period subsequent to the opening of the ORT facility. See table below, summarizing more detailed data from the Florida Turnpike System, which provides additional insight into overall crash reduction, as well as property damage and fatal injury rates.

Average Crash Frequency Reduction

Toll Plaza	State Road	ORT Opening Day	Turnpike Milepost	All Crash Types	Property Damage Only	Fatal + Injury
Homestead	SR-821	12/21/2007	10.424	49%	47%	53%
Bird Road	SR-821	11/13/2007	23	28%	11%	43%
Cypress	SR-91	2/4/2008	64.274	64%	69%	56%
Lantana	SR-91	3/17/2008	89.356	86%	89%	77%
Sunrise	SR-869	4/28/2008	2.048	42%	22%	53%
Beachline West	SR-528	8/13/2008	6.17	79%	69%	87%
Deerfield	SR-869	3/24/2009	20.452	78%	79%	93%
Average				61%	55%	66%
Golden Glades*	SR-91	N/A	0.584	13%	1%	31%

* Golden Glades is a barrier plaza that was not converted.

Transportation Patterns

The toll facility is located along Interstate 93, which is a major highway corridor that carries commuter, tourist and commercial traffic north and south through the State. It is not expected that the proposed project would alter regional transportation patterns following construction given that the existing toll facility will remain in place, only to be enhanced to allow for more efficient travel. The toll plaza is on a segment of I-93 where there are no interstate alternatives for travel and is located on an 8-mile segment of I-93, which

connects to I-293 on its southerly limits and I-89 on its northerly limits. Open Road Tolling traffic approaching the plaza would be separated from conventional toll lanes and permitted to continue at “open road” speeds. On departure from the plaza, the two ORT lanes would be shifted out of the median adjacent to the other lanes, creating a 5-lane section. Open Road Tolling vehicles would remain separated until those vehicles required to stop at the plaza are able to regain interstate traveling speeds. Once the lanes are merged, the rightmost lane would then be dropped to match the existing 4-lane section (two lanes in each direction). The ramps would be widened and the acceleration and deceleration lanes extended to meet current safe standards and to accommodate the widening of the toll plaza. Maintenance access ramps would be constructed to allow maintenance, emergency services and state police vehicles to access both sides of the interstate during emergencies and during snow plowing activities.

Energy Needs/ Economic Benefit

Vehicle idling is a concern for motorists and air quality both, as idling vehicles continue to burn fuel without the benefit of movement. An idling vehicle at a toll plaza can add up in terms of fuel consumption over time, given that a typical motor vehicle uses about 0.026 gallons of gasoline every 10 minutes while idling, which costs approximately 5 cents. This adds up to about 9.5 ounces of carbon dioxide emissions during those 10 minutes. **See the Air Quality section for more information**

The EPA’s Motor Vehicle Emission Simulator (MOVES) model measures energy consumption in million BTUs per hour. Results of the MOVES model utilized for this project are presented in the table below. The reduction in energy consumption ranges from 1% to 24% based on the level of congestion with the existing barrier plaza configuration compared to the improvement with the ORT configuration. Since the average weekday has the least existing congestion of the four time periods, the reduction in energy is also the least. As traffic volume increases between 2012 and 2022, the energy consumed increases. However, on the busiest days of the year, traffic using the ORT configuration will use less energy in 2022 than the barrier plaza configuration in 2012. These projected reductions are the result of less congestion through the plaza with the ORT configuration and government mandated new car and light truck greenhouse gas emissions standards affecting model years 2012 and later along with improved corporate average fuel economy standards affecting model years 2008-2011.

Total Energy Consumption, Million BTU/hr

Day	Peak Hour	Total Energy Consumption, Million BTU/hr					
		2012			2022		
		Existing	ORT	% Change	Existing	ORT	% Change
Friday	4:00 pm	254.9	208.6	-18.16	280.5	228.8	-18.43
Saturday	11:00 am	201.9	177.6	-12.04	245.3	189.0	-22.95
Sunday	3:00 pm	225.0	170.0	-24.44	212.3	161.0	-24.16
Avg. Weekday	4:00 pm	154.4	152.8	-1.04	169.0	162.8	-3.67

Annual Fuel Consumption Summary (gallons)

	Existing (14 conventional lanes)	ORT (4 ORT + 12 conventional lanes)	Reduction	% Reduction
Avg. Weekday	20,546,553	20,274,980	271,572	1.3%
Summer Weekday	3,847,477	3,714,806	132,671	3.4%
Summer Weekend	3,521,599	3,460,203	61,396	1.7%
Annual Total	27,915,628	27,449,989	465,640	1.7%

In terms of fuel consumption economic benefit to drivers, if it is assumed that the average gas price is \$3.45, this equates to an aggregate savings of about **\$1.6 million**.

Travel Time Through Study Area (vehicle-hours)

	Existing (14 conventional lanes)	ORT (4 ORT + 12 conventional lanes)	Reduction	% Reduction
Avg. Weekday	1,339,486	1,178,486	160,999	12.0%
Summer Weekday	239,102	211,040	28,062	11.7%
Summer Weekend	287,784	208,150	79,634	27.7%
Annual Total	1,866,372	1,597,677	268,695	14.4%

Total travel time through the study area is expected to be reduced by over a quarter-million hours. The driver economic benefit can be calculated as follows:

- Mean hourly wage rate in NH: \$21.37 (http://www.bls.gov/oes/current/oes_nh.htm#00-0000)
- Value of travel time ~50% of mean hourly wage rate: \$10.68 per hour
- Value of travel time savings = \$10.68/hr X 268,695 hours = **\$2.87 million**

The combined annual benefit of fuel savings and travel timesavings would be approximately **\$4.5 million** with the implementation of ORT.

Air Quality

The Hooksett Toll Plaza study area is located in Merrimack County, which is within the Merrimack Valley-Southern New Hampshire Interstate Air Quality Control Region (AQCR #121). The Town of Hooksett is currently located within an area that is in attainment for six (6) of the seven (7) criteria pollutants, and has been classified as being in nonattainment for the 8-hour ozone standard (Note: Hooksett is the only town within Merrimack County which is located within the 8-Hour ozone non-attainment area.).

The pollutant burden analysis indicates that during the busiest hours of the year the implementation of ORT by 2012 would result in substantial reductions in energy (18% – 24%), VOC (29% - 35%), CO (30% - 35%), PM2.5 (22% - 32%) and GNG emissions (12% - 24%) compared to the 2012 existing barrier plaza configuration under most scenarios. The 2022 ORT emissions are less than the 2022 existing barrier plaza configuration emissions with reductions in the same ranges compared to the 2012 reductions. NOx emissions

for the busiest hours of the year would improve with the proposed ORT with reductions ranging from 9% - 12%. With shorter queues on an average day, the improvements in NOx emissions from reducing the queues would be offset by the slightly higher average operating speeds resulting in a 2% increase in NOx emissions over the existing barrier plaza configuration. In 2022 the ORT NOx emissions are projected to be 2% less than the emissions with the existing barrier plaza.

With the exception of the slight increase in NOx emissions in 2012, which is attributed to a slightly higher operating speed, conversion to an ORT facility would result in less energy consumption, reduced air emissions and improved air quality. Along with eliminating congestion for the traveling public, the air quality analysis completed for the proposed improvements indicates that this project would not delay the attainment of the ozone criterion nor will it cause or contribute to any violation of the NAAQS.

Noise

Noise impacts associated with the proposed project were evaluated in accordance with the guidance set forth in the Department's Policy and Procedural Guidelines for the Assessment and Abatement of Highway Traffic Noise for Type I Highway Projects. Estimated traffic volumes, in conjunction with roadway geometries and vehicle speeds, were used for computer input. Traffic generated noise levels were predicted for each receptor within the project area.

The Department uses a Noise Abatement Criteria (NAC) of 67 decibels (dBA) Leq for residential receptors and 72 dBA Leq for commercial receptors. These criteria apply to exterior, ground level areas where frequent human use occurs and where a lowered noise level would be of benefit. Traffic noise impacts occur when the predicted traffic noise levels approach (within 1 dBA), are equal to or exceed the NAC or when future predicted traffic noise levels exceed existing noise levels by 15 dBA or more.

Existing land use abutting the Turnpike is a mixture of vacant lands owned by private individuals, corporations, a trust, the NHDOT, the Public Service Company of New Hampshire, along with an active and an inactive sand and gravel pit. The nearest residences are located east of Rugby Road and are approximately 280 feet east of the Turnpike's ROW. Other scattered residences in the area are 350 to 480 feet east of the right-of-way. Immediately within the area abutting the toll plaza and the Hackett Hill Road exit there are a number of privately owned commercial buildings and a number of buildings owned by the Turnpike.

The results of the noise modeling for the developed properties indicate that existing noise levels presently range from 49 to 69 dBA Leq(1h). The proposed ORT improvements would result in a one (1) to five (5) decibel increase in the Leq noise level along the study area in 2022 creating noise levels that would range from 52 to 72 dBA Leq(1h). The maximum noise level, 72 dBA Leq(1h), would occur at a NHDOT/Turnpike office building on the NHDOT property adjacent to the north bound off-ramp from the Turnpike to Hackett Hill Road. This is the only receptor in the study area that would approach or exceed the Noise Abatement Criteria (NAC) of 72 dBA Leq(1h) for Activity Category C. None of the noise levels at the scattered residences approached or exceeded the Noise Abatement Criteria (NAC) of 67 dBA Leq(1h) for residential land uses. As no privately owned, developed properties exceeded the NAC, noise barriers were not analyzed for this project. Refer to Table 2 on page 11 for existing and future noise levels.

The 66 dBA setback distance within the noise study area for the proposed ORT facility would range from the existing right of way line to 400 ft from the right of way line. This range of distances is a function of the

variation in the existing terrain adjacent to the proposed improvements. The setback distance indicates that noise levels within this area are 66 dBA or greater. This setback distance was developed to assist local planning authorities in developing land use control over the remaining undeveloped lands along the project in order to prevent further development of incompatible land use.

Construction activities would temporarily increase noise due to the use of heavy equipment, however these noise levels are expected to return to normal after the project has been completed.

Contaminated Materials

The Department maintenance shed at the Hooksett Toll Plaza (shed 825) (DES #198910041) is listed at the Department of Environmental Services (DES) as formerly containing leaking underground storage tanks (LUST(s)). The site was remediated and closed with a *No Further Action* determination by DES. The property is permanently eligible for Oil Discharge and Disposal Cleanup Fund (ODDCF) reimbursement. As such, project related costs incurred due to contamination from the patrol shed property might be partially or fully reimbursable by this fund.

The site is also listed as an On Premise Use Facility (OPUF) containing fuel oil. This property may be eligible for OPUF fund reimbursement. Project related costs incurred as a result of contamination from this property may be partially or fully reimbursable by this fund (*Exhibit D*).

In the event that any contamination is encountered during construction, the Department would stop work in the area until the contamination is addressed. In addition, the contractor would schedule work so that the proper amount of time is allotted for investigating, testing, documenting, and removing any contaminated materials.

Land Use/ Tax Base

Coordination was established with local and state officials, and it was determined that there are no parks or recreational areas that would be affected by this project as all work would be contained within the limits of existing right-of-way. As such, there should be no changes in land use with this project area, and no change on the tax base of Hooksett.

The proposed action has been reviewed by the Office of Energy and Planning, Conservation Land Stewardship (CLS) Program Coordinator, and it was determined that there are no CLS resources within the project area (*Exhibit E*).

The Land and Water Conservation Fund (LWCF) is a program established by Congress in 1964 to create parks and open spaces; protect wilderness, wetlands, and refuges; preserve wildlife habitat; and enhance recreational opportunities. Any alteration or conversion of LWCF properties necessitates a 6(f) conversion of property. Based upon a review of their LWCF files, the Department of Resources and Economic Development (DRED) has advised that, although Section 6(f) parcels may be present in the project area, the proposed project will not impact the recreational value of these 6(f) parcels (*Exhibit F*).

Wetlands

Wetlands were delineated in accordance with the 1987 US Army Corps of Engineers "Wetlands Delineation Manual," Technical Report Y-87-1, as well as the "Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual North Central and Northeast Region," dated October 2009. A vernal pool assessment was completed in April 2010 in accordance with the NH Fish and Game Department's "Identification and Documentation of Vernal Pools in New Hampshire," dated 1997. Wetlands were classified according to the Classification of Wetlands and Deepwater Habitats of the United States FWS/OBS-79/31, by Cowardin, et. al. The classification of wetlands within the project area include

1. PFO1E/PSS1E/PSS1Hg
2. PFO1E
3. PFO1E/PSS1E/PEM1E/R3UB1G
4. R3UB1G
5. PEM1E/PSS1Hg

R = Riverine, 3 = Upper perennial, UB = Unconsolidated bottom, 1 = Cobble-gravel

P = Palustrine

EM = Emergent, 1 = Persistent

SS = Scrub-shrub, 1 = Broad-leaved deciduous

FO = Forested, 1 = Broad-leaved deciduous

E = Seasonally flooded/saturated

G = Intermittently exposed

H = Permanently flooded

g = Organic

Work associated with the proposed project would involve dredge and fill activities within areas under the jurisdiction of the DES Wetlands Bureau and the Army Corps of Engineers (ACOE). Impacts include 5,217 ft² of permanent impacts necessary for the widening of the facility to accommodate widening of the roadway, and to facilitate drainage and water quality treatment. In addition, 3,881 ft² of temporary impacts would be necessary to safely and efficiently facilitate construction, while protecting adjacent wetland resources. Total wetland impacts would be 9,098 ft². A "major" DES Wetlands Bureau permit was obtained for this project on September 30, 2011 (#2011-00521) (*Exhibit G*).

The project was reviewed by the ACOE, DES Wetlands Bureau, NH Fish and Game Department (NHF&G), USF&WS, and US Environmental Protection Agency (EPA), among others at monthly Natural Resource Agency Coordination Meetings on January 20, 2010 and March 16, 2011. No one in attendance objected to the project as proposed and it was determined that the project would qualify for an ACOE State Programmatic General Permit (SPGP) (*Exhibit H*).

Shoreland

'The Shoreland Water Quality Protection Act was originally named the Comprehensive Shoreland Protection Act (CSPA) and was enacted into law in the 1991 session of the Legislature. The act establishes minimum standards for the subdivision, use and development of shorelands adjacent to the state's public water bodies. On July 1, 2005, NH Senate Bill 83 established a commission to study the effectiveness of the comprehensive

shoreland protection act. Among other things, the commission was charged with assessing land-use impacts around the state's public waters; size, type, and location standards pertaining to structures as outlined in the CSPA; shoreland buffer and setback standards; and nonconforming use, lot, and structure standards. The final report of the commission contained 17 recommendations for changes to the CSPA. Sixteen of those recommendations for change were enacted into law and became effective April 1, 2008 and July 1, 2008. The changes were broad in scope and included limits on impervious surfaces, a provision for a waterfront buffer in which vegetation removal was limited, shoreland protection along rivers designated under RSA 483 (Designated Rivers), and the establishment of a permit requirement for many new construction, excavation and filling activities within the Protected Shoreland. During the 2011 legislative session, the CSPA was renamed to the Shoreland Water Quality Protection Act and included changes to vegetation requirements within the natural woodland and waterfront buffers, the impervious surface limitations and included a new shoreland permit by notification process.' (NH Department of Environmental Services website).'

A shoreland permit was received for this project on April 1, 2011 for work within the 250-foot protected shoreland of Pinnacle Pond (*Exhibits I & N2*).

Water Quality/ Surface Water

Every two years the Federal Clean Water Act (CWA), as last reauthorized by the Water Quality Act of 1987, requires each State to submit a document typically called the "303(d) List," which is so named because it is a requirement of Section 303(d) of the CWA. The 303(d) List includes surface waters that meet the following criteria:

1. Impaired or threatened by a pollutant or pollutant(s).
2. Not expected to meet water quality standards within a reasonable time even after application of best available technology standards for point sources or best management practices for nonpoint sources.
3. Require development and implementation of a comprehensive water quality study (a Total Maximum Daily Load (TMDL) study), which is designed to meet water quality standards.

In accordance with Section 303(d) of the CWA, the NH Department of Environmental Services has designated the Merrimack River as impaired for several parameters, aluminum, dissolved oxygen and *E. coli*. The Merrimack River lies within one mile of the project area; therefore the project is subject to water quality regulations if a permit is required pursuant to NH RSA 482-A. The criteria pollutants listed above are not highway driven, and the drainage modifications are designed to accommodate the expansion of the turnpike and will provide equivalent or improved levels of stormwater treatment from what is currently in place.

The proposed project would increase impervious surfaces in the corridor approximately 3.4 acres. However, the micropool extended detention basins incorporated into the design would provide water quality treatment for 9.4 acres of roadway, a factor of 2.7 times the increase in impervious surface. Moreover, the basins would address an area that currently receives no treatment through formal best management practices.

Phase I of the National Pollutant Discharge Elimination System (NPDES Phase I) was designed to regulate stormwater runoff discharges on construction sites that disturb five (5) or more acres of property. In 1999 EPA expanded the NPDES Program by designating additional sources of stormwater for regulation to protect water quality. This new, expanded program is called NPDES Phase II. The newer Phase II regulations further regulate sources of nonpoint source pollution, the leading cause of water quality degradation in the United States. Phase II affects "small construction sites," or those that disturb greater than one (1) acre of

land. The Phase II Construction General Permit (CGP) requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for each construction project disturbing more than one (1) acre of land. In order to protect all receiving waterbodies, the contractor will be required, as a contract provision, to prepare a SWPPP for this project prior to the commencement of construction activities. This plan will ensure that all exposed areas, where construction activities are ongoing, are stabilized using appropriate erosion control techniques. Drainage patterns will not change as a result of this project.

Floodplains/ Floodways

The project is adjacent to an area identified as a Zone A (no Base Flood Elevations (BFE) determined) for Brickyard Brook on the Flood Insurance Rate Map (FIRM) for the Town Hooksett (*Exhibit J*). Although there is the possibility that there may be a small volume of fill required within this Zone A, the volume would be minimal when compared to the size of the watershed. The proposed project would have a negligible affect on this Zone A and would not adversely affect flooding dynamics.

Wildlife/ Endangered Species/ Natural Communities

The proposed action has been vetted through the USF&WS and NH Natural Heritage Bureau (NHNHB) on-line, web-based review process, for the presence of Federal or State, listed or proposed, Threatened or Endangered species, or other species or plant communities of special or exemplary status. Based on currently available information, there are no Federally Threatened or Endangered species in the project area (*Exhibit K*).

The NHNHB report on 11/12/2010 indicated that there are several plant, plant community, and vertebrate and invertebrate species within the project area (*Exhibit L*). They include A Noctuid Moth, Barrens Xylotype, Brook floater mussels, Sandy pond shore system, Grassleaf Goldenrod, and Bald Eagle. Follow-up correspondence with NHNHB concluded that based on the proposed improvements, NHNHB does not expect impacts to Pinnacle Pond and the associated plant community, nor to rare plant species. The NH Fish and Game Department, responded that they do not expect impacts to any of the species in the project area (*Exhibit X*).

Invasive Plants

The project contains areas of Invasive Species Type I (Autumn olive, Oriental bittersweet and Glossy buckthorn), and Type II plants (Japanese knotweed, and Purple loosestrife), which have the ability to sprout from stem and root fragments. They are prohibited invasive plants regulated by the NH Department of Agriculture, Market and Foods' (DAMF) Invasive Species Rule, AGR 3800. This rule was enacted to preserve the integrity of the natural environment and commercial agriculture and states, in part, that "*...no person shall collect, transport, sell, distribute, propagate or transplant any living and viable portion of any listed prohibited invasive plant species...*"

These DAMF regulations require that appropriate containment measures and disposal methods be in place to prevent the spread of these plants both within and outside the project area. As such, prior to clearing and grubbing operations occurring in areas identified on the plans as containing invasive plant species, the

contractor would be required to provide an Invasive Species Control Plan, which would detail the specific method(s) of controlling the spread of the identified invasive species. In addition, work would be completed in compliance with the Department document entitled "*Best Management Practices for Roadside Invasive Plants.*"

Cultural Resources

The Department has coordinated with the NH Division of Historical Resources (NHDHR) to locate and identify National Register of Historic Places listed and/or eligible properties within the area and has determined how they would be affected by the proposed project. There are no culturally sensitive properties adjacent to the project area. In addition, the Department has conducted necessary phases of archaeological investigation in and around the Exit 11 ramps. No archaeological sites were discovered. As such, there would be 'no historic properties affected' by this project (*Exhibit M*).

Coordination & Public Participation

Letters were sent to various Federal, State, and local officials requesting input on this project on the following dates:

<u>Agency / Organization</u>	<u>Contact</u>	<u>Date Sent</u>	<u>Input Received</u>
Town of Hooksett			
Chairman of Council	William Gahara	10/1/2009	-
Town Administrator	Carol Granfield	10/1/2009	
Highway Manager	Dale Hemeon	10/1/2009	-
Chairman of Planning Board	Richard G. Marshall	10/1/2009	
Conservation Commission	Timothy Johnson	10/1/2009	
Emergency Management Director	Al Dionne	10/1/2009	2/25/2009
Historical Society	David Paquette	10/1/2009	-
Southern New Hampshire Commission	David Preece	10/1/2009	
NH Floodplain Management Program	Jennifer Gilbert	10/1/2009	10/8/2009
NH DRED – LWCF	Jane Carey	10/1/2009	10/14/2009
NH OEP – CLS Program	Steve Walker	10/1/2009	10/5/2009

Meetings were held periodically with various State and local agencies, as well as with the general public throughout the development of this project. Project review meetings were held on the following dates:

<u>Date</u>	<u>Meeting</u>
September 10, 2009	Cultural Resource Agency Coordination Meeting
January 20, 2010	Natural Resource Agency Coordination Meeting
March 16, 2011	Natural Resource Agency Coordination Meeting
June 6, 2011	Cultural Resource Agency Coordination Meeting
December 2011 (anticipated)	Public Informational Meeting

Construction Impacts

Construction of this project would be anticipated to cause temporary increases in noise and dust levels within the project area. All standard measures would be employed to ensure such increases are minimized to the extent practicable and limited to the construction period.

Access to all properties would be maintained throughout construction. Any temporary suspensions of through traffic would be held to a minimum.

The project contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), approved by the Department, prior to the commencement of construction activities.

Standard pollution prevention measures would be employed to assure all negative impacts are avoided and/or minimized to the maximum extent practicable.

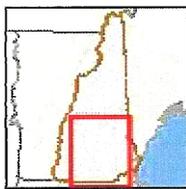
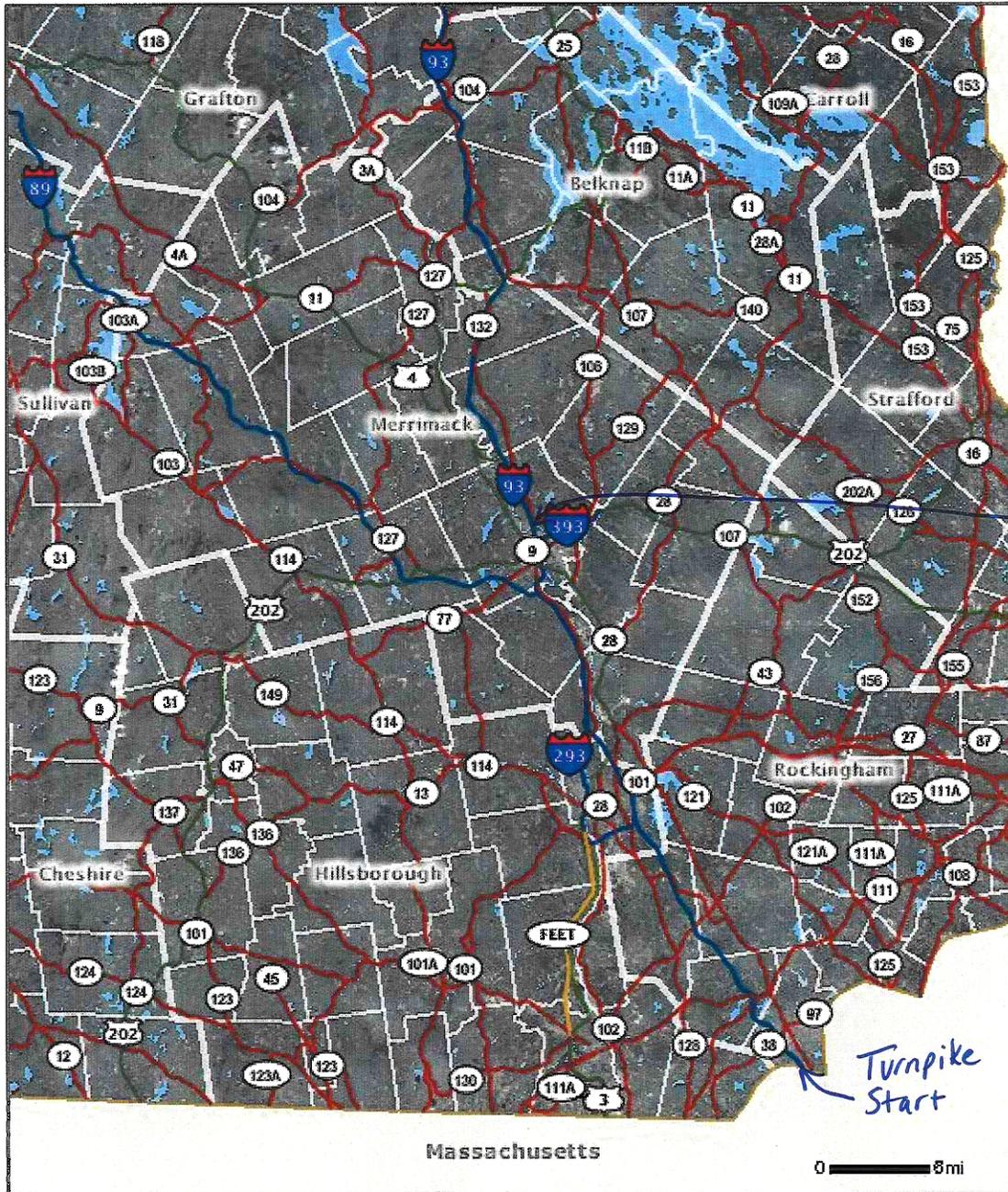
Summary of Environmental Commitments

The following environmental commitments have been made for this project:

1. Prior to the commencement of work, the contractor shall submit a SWPPP specific to this project. The plan shall be approved by the Department, and implemented and monitored as noted. **(Construction/Environment)**
2. Prior to the commencement of work, the contractor shall submit an Invasive Species Control Plan specific to this project. The plan shall be approved by the Department, and implemented and monitored as noted. **(Construction/Environment)**
3. Precautions shall be employed to minimize noise and dust levels during the construction period, primarily for the abutting receptors located adjacent to the project area. **(Construction)**
4. In the event that any contamination is encountered during construction, the Department shall stop work in the area until the contamination is adequately addressed. In addition, the contractor responsible for the work shall schedule work so that the proper amount of time is allotted for investigating, testing, documenting, and removing any contaminated materials. **(Construction/Environment)**
5. All work, including construction staging, shall be completed such that there are no impacts to Pinnacle Pond or its banks. **(Construction/Environment)**

NH GRANIT DATA MAPPER

Base Map:



Location Map



Map Produced:
October 20, 2011



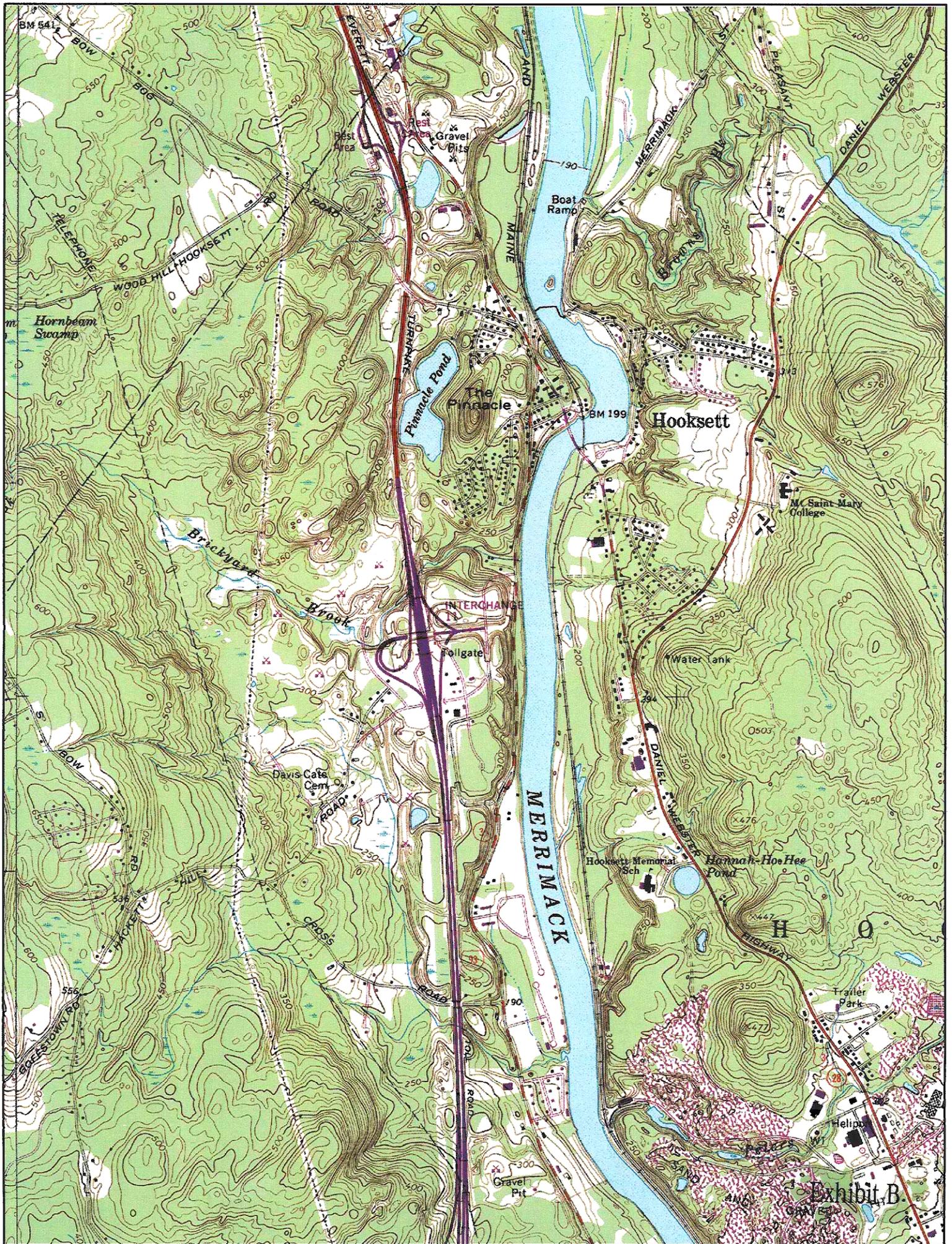




Exhibit C

On-premise Use Facility Containing Fuel Oil Project Report

Site Number: 198910041

Project Number: 0015268

Name and Address: NH DOT TURNPIKE MAINTENANCE 825
36 HACKETT HILL RD
HOOKSETT

Responsible Party: NHDOT
HOOKSETT NH

[MapIt](#)

Wellhead Protection Area: No

Risk Level: NO SOURCES/NO AGGS VIO'S FROM ONSITE

Assigned To: CLOSED

Discovery Date: 12/21/2005

Eligible: UNKNOWN OR NOT YET ACHIEVED

Eligibility Determined on:

MTBE: N

Brownfield: N

Activities (3)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
10/26/2006	Tank Closure Report	BERUBE	11/30/2006	Technical Report Approved	
01/04/2006	Additional Information Received	LEATHERS	07/06/2006	Regulatory Action Compl.-DES File Closed	
12/27/2005	Discharge of a Regulated Substance	LEATHERS	01/03/2006	Additional Information Requested	

Site Number: 198910041

Project Number: 0018266

Name and Address: NH DOT TURNPIKE MAINTENANCE 825
36 HACKETT HILL RD
HOOKSETT

Responsible Party: NHDOT
CONCORD NH 03302

[MapIt](#)

Wellhead Protection Area: No

Risk Level: NO SOURCES/NO AGOS VIO'S FROM ONSITE

Assigned To: CLOSED

Discovery Date: 12/19/2007

Eligible: PERMANENTLY ELIGIBLE

Eligibility Determined on: 02/08/2008

MTBE: N

Brownfield: N

Activities (4)

Submittal Date	Submittal Description	Staff Assigned	Action Date	Action Description	Comments
02/18/2010	Additional Information Received	KARNAUKH-S	03/11/2010	Regulatory Action Compl.-DES File Closed	CLOSURE LETTER

Activity Documents (2)

Document ID	Document Type	Document Title	Document Date	File Size
4221466	CORRESPONDENCE	EMAIL CLOSURE REQUEST	03/11/2010	.21 MB
4229182	CORRESPONDENCE-FROM	CERTIFICATE OF NO FURTHER ACTION AND RESPONSE TO LEVE II SITE INVESTIGATION REPORT PREPARED BY ATC ASSOCIATES DATED AUGUST 1 2008	03/11/2010	.04 MB

08/04/2008	Site Investigation Report Received	KARNAUKH-S	10/28/2008	Regulatory Action Compl.-DES File Closed
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Activity Documents (2)

Document ID	Document Type	Document Title	Document Date	File Size
4148272	CORRESPONDENCE-FROM	INTENT TO CLOSE AND IN RESPONSE TO LEVEL II SITE INVESTIGATION REPORT PREPARED BY ATC ASSOCIATES DATED AUGUST 1 2008	10/28/2008	.06 MB
4120119	REPORT TO DES	LEVEL II SITE INVESTIGATION REPORT 01-AUG-2008	08/04/2008	24.21 MB

03/04/2008	Change Order	LEDGARD	03/17/2008	Change Order Approved
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Activity Documents (1)

Document ID	Document Type	Document Title	Document Date	File Size
4065868	WORKSCOPE/BUDGET	CHANGE ORDER FOR ADDITIONAL DRILLING AND FIELD EFFORT; APPROVAL	03/17/2008	.07 MB

Leaking Underground Storage Tank Project Report

Site Number: 198910041

Project Number: 0018266

Name and Address: NH DOT TURNPIKE MAINTENANCE 825
36 HACKETT HILL RD
HOOKSETT

Responsible Party: NHDOT
CONCORD NH 03302

[MapIt](#)

Wellhead Protection Area: No

Risk Level: NO SOURCES/NO AGQS VIO'S FROM ONSITE

Assigned To: CLOSED

Discovery Date: 12/19/2007

Eligible: PERMANENTLY ELIGIBLE

Eligibility Determined on: 02/08/2008

MTBE: N

Brownfield: N

No Vapor Recovery Information

From: Walker, Steve [Steve.Walker@nh.gov]

Sent: Monday, October 05, 2009 12:02 PM

To: Kevin Nyhan

Subject: Hooksett 15803

There are no LCIP properties in your project area. cheers Stephen

Exhibit E

CHH CHH KTNL

State of New Hampshire
INTER-DEPARTMENT COMMUNICATION

To: Kevin T. Nyhan
Senior Environmental Manager
Department of Transportation

From: Jane Carey
Dept. of Resources and Economic Development
Division of Parks and Recreation

Date: October 14, 2009

Subject: Hooksett, 15803
(Retrofitting Hooksett Toll Plaza for Open Road Tolling)

This communication is in response to your memo dated October 1, 2009 regarding retrofitting on Interstate 93 at the toll plaza in Hooksett, NH for open road (highway speed) tolling (ORT) to inquire if there are any Land and Water Conservation Fund (LWCF) properties in the area of the proposed project. Currently the town of Hooksett, NH has three LWCF properties. They are:

- 33-00042 - FRASER MEMORIAL FIELD
- 33-00125 - RIVERSIDE PARK
- 33-00209 - DONATI FIELD TENNIS COURTS

I have checked into our project files and based on the information and map you provided it appears there are no LWCF 6 (f) properties in that area of Interstate 93.

Feel free to contact me at 271-3556 or at Jane.Carey@dred.state.nh.us should you have any questions.

JC/jc

RECEIVED
BUREAU OF ENVIRONMENT
OCT 16 2009
NH DEPARTMENT OF
TRANSPORTATION

Exhibit F



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

RECEIVED
BUREAU OF ENVIRONMENT



Thomas S. Burack, Commissioner

SEP 30 2011

NH DEPARTMENT OF
TRANSPORTATION

WETLANDS AND NON-SITE SPECIFIC PERMIT 2011-00521

**NOTE--
CONDITIONS**

Permittee: NH Dept of Transportation,
7 Hazen Dr. Concord, NH 03302-0483
Project Location: Interstate 93, Hooksett
Waterbody: Brickyard Brook / Unnamed Wetlands

Page 1 of 2

APPROVAL DATE: 09/12/2011

EXPIRATION DATE: 09/12/2016

Based upon review of the above referenced application, in accordance with RSA 482-A and RSA 485-A:17, a Wetlands Permit and Non-Site Specific Permit was issued. This permit shall not be considered valid unless signed as specified below.

PERMIT DESCRIPTION: Extend embankments and modify drainage to widen the roadway to accommodate open road tolling impacting 9,098 sq. ft. (3,881 sq. ft. temporary) of palustrine and riverine wetlands. NHDOT project 15803.

THIS APPROVAL IS SUBJECT TO THE FOLLOWING PROJECT SPECIFIC CONDITIONS:

1. All work shall be in accordance with plans by GZA GeoEnvironmental, Inc., as received by the Department on March 15, 2011.
2. This permit is contingent upon the submission of a project specific stream diversion and erosion control plans to the DES Wetlands Bureau. Those plans shall detail the timing and method of stream flow diversion during construction, and shall show the temporary siltation, erosion and turbidity control measures to be implemented.
3. At least 48 hours prior to the start of construction, a pre-construction meeting shall be held with NHDES Land Resources Management Program staff at the project site, at the NHDES Office in Concord, N.H. or NHDOT Office in Concord, N.H. to review the conditions of this wetlands permit. It shall be the responsibility of the permittee to schedule the pre-construction meeting, and the meeting shall be attended by the permittee, his/her professional engineer(s), wetlands scientist(s), and the contractor(s) responsible for performing the work.
4. Dredged material shall be placed out of the DES Wetlands Bureau jurisdiction.
5. Construction equipment shall not be located within surface waters.
6. Discharge from dewatering of work areas shall be to sediment basins that are: a) located in uplands; b) lined with hay bales or other acceptable sediment trapping liners; and c) set back as far as possible from wetlands and surface waters, in all cases with a minimum of 20 feet of undisturbed vegetated buffer.
7. Appropriate siltation/erosion/turbidity controls shall be in place prior to construction, shall be maintained during construction, and shall remain until the area is stabilized.
8. Within three days of the last activity in an area, all exposed soil areas, where construction activities are complete, shall be stabilized by seeding and mulching during the growing season, or if not within the growing season, by mulching with tack on slopes steeper than 3:1 or netting /matting and pinning on slopes steeper than 2:1.
9. Where construction activities have been temporarily suspended within the growing season, all exposed soil areas shall be stabilized within 14 days by seeding and mulching or if temporarily suspended outside the growing season, all exposed areas shall be stabilized within 14 days by mulching, mulching with tack on slopes steeper than 3:1 and stabilized by matting and pinning on slopes steeper than 2:1.

Exhibit G

DES Web site: www.des.nh.gov

P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095

Telephone: (603) 271-3503 • Fax: (603) 271-6588 • TDD Access: Relay NH 1-800-735-2964

- 10. The contractor responsible for completion of the work shall utilize techniques described in the New Hampshire Stormwater Manual, Volume 3, Erosion and Sediment Controls During Construction (December 2008).
- 11. Appropriate storm water management and erosion control Best Management Practices (BMP) shall be implemented to ensure turbidity impacts are minimized and water quality standards are not violated. If the BMP conflicts with terms or conditions of this permit, the terms and conditions of this permit shall control.
- 12. The project engineer shall oversee installation of erosion controls and periodically verify that the controls are properly maintained during construction.
- 13. Extreme precautions to be taken within riparian areas to limit unnecessary removal of vegetation during road construction and areas cleared of vegetation to be revegetated as quickly as possible.
- 14. There shall be no further alteration to wetlands or surface waters without amendment of this permit.
- 15. Standard precautions shall be taken to prevent import or transport of soil or seed stock from nuisance, invading species such as purple loosestrife or Phragmites.
- 16. The impacts associated with the temporary work shall be restored immediately following construction.

GENERAL CONDITIONS THAT APPLY TO ALL DES WETLANDS PERMITS:

- 1. A copy of this permit shall be posted on site during construction in a prominent location visible to inspecting personnel;
- 2. This permit does not convey a property right, nor authorize any injury to property of others, nor invasion of rights of others;
- 3. The Wetlands Bureau shall be notified upon completion of work;
- 4. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits, and/or consult with other agencies as may be required (including US EPA, US Army Corps of Engineers, NH Department of Transportation, NH Division of Historical Resources (NH Department of Cultural Resources), NHDES-Alteration of Terrain, etc.);
- 5. Transfer of this permit to a new owner shall require notification to and approval by DES;
- 6. This permit shall not be extended beyond the current expiration date.
- 7. This project has been screened for potential impacts to **known** occurrences of rare species and exemplary natural communities in the immediate area. Since many areas have never been surveyed, or have received only cursory inventories, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species.
- 8. Review enclosed sheet for status of the US Army Corps of Engineers' federal wetlands permit.

APPROVED: *Gino Infascelli*
 Gino Infascelli
 Public Works Supervisor
 DES Wetlands Bureau

BY SIGNING BELOW I HEREBY CERTIFY THAT I HAVE FULLY READ THIS PERMIT AND AGREE TO ABIDE BY ALL PERMIT CONDITIONS.

David Smith
 OWNER'S SIGNATURE (required)

 CONTRACTOR'S SIGNATURE (required)

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: January 20, 2010

LOCATION OF CONFERENCE: John O. Morton Building

ATTENDED BY:

NHDOT

Bob Landry
Brian Wilmot
Carol Niewola
Cathy Goodmen
Christine Perron
David Scott
Don Lyford
John Butler
John Hebert
Jon Evans
Kevin Nyhan
Kirk Mudgett
Marc Laurin
Matt Urban
Michael Hazlett
Mike Dugas
Mike Pouliot
Nancy Spaulding
Pete Stammas
Tony King

**Federal Highway
Administration**

Jamie Sikora

Army Corps of Engineers

Erika Mark
Rich Roach

EPA

Mark Kern

**Federal Aviation
Administration**

John Merck
Lisa Lesperance
Michel Hovan

NHDES

Gino Infascelli
Laura Weit
Lori Sommer
Thomas Fargo

NH Fish and Game

Carol Henderson
Heidi Holman

**NH Natural Heritage
Bureau**

Melissa Coppola

City of Concord

Martha Drukker

Gale Associates

Armand Dufresne
Coleen Mailbux
Erik Strand
Stu Moncrieff

BEC Inc.

Dan Nitzsche

Parlin Field Apt.

Russell Kelsea

HEB Engineers

Chris Fournier

CLD Engineers

Dan Hudson
John Byatt

Smart Associates

Glenn Smart
Jenn Riordan

Jacobs Engineering

John Gorham

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

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

Finalization of October 29, 2009 & December 10, 2009 Meeting Minutes... **Error! Bookmark not defined.**

Nashua Airport Improvements, SBG-12-02-2009..... **Error! Bookmark not defined.**
Salem-Manchester, IM-IR-93-1(174)0, 10418C **Error! Bookmark not defined.**
Grafton, 13373A (non-Federal)..... 4
Grafton, 14627 (non-Federal)..... 4
Conway, 15300 (non-Federal)..... 5
Durham-Newmarket, STP-TE-X-5133(009), 13080..... 6
Manchester, 14966 (non-Federal)..... 6
Manchester-Hooksett, 15849 (non-Federal)..... 8
Hooksett, 15803 (non-Federal)..... 9
Chesterfield, STP-X-000S(448), 13597..... 9
Lee, X-A000(895), 15692 11
Lincoln-Franconia, A000(808), 15603 12
Dover, X-A001(013), 15870 12
Concord Airport EA, SBG-04-05-2010 13

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

Hooksett, 15803 (non-Federal)

John Butler presented this project, which involves retrofitting the existing toll plaza along I-93 in Hooksett for open road (highway speed) tolling. To accomplish this, the middle 6 lanes (3 in each direction) would be converted to four ORT lanes (2 in each direction). Each side of the roadway would be widened to install two additional conventional tollbooths in each direction. Work would extend in each direction to install signing and turn-around areas for maintenance vehicles. Preliminarily, wetland impacts would be approximately 0.1 acre. Pinnacle Pond, a water supply, lies adjacent to the east side of the roadway at the northerly limits of the project. It is also home to several rare plant communities. Similar to the current conditions, drainage will be directed away from this sensitive resource. John indicated he would review the project for drainage treatment.

There was some discussion regarding plow operations and the necessary turn-arounds. J. Butler indicated that the Department is still working on these issues.

Carol H. indicated that she had a concern for wildlife being killed along the roadway, given that concrete barrier is proposed to be installed in three areas (between ORT lanes, and between ORT and EzPass lanes. J. Butler indicated that as a result of the high traffic volumes along this section of roadway, concrete barriers are necessary for safety reasons. It was noted that Cathy Goodmen is reviewing possible treatments to solid concrete barrier to make them more permeable to wildlife. In other States, these types of “permeable” barriers are now being crash tested.

The project will be presented again once more refined design and impact information is available.

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: March 16, 2011

LOCATION OF CONFERENCE: John O. Morton Building

ATTENDED BY:

NHDOT

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

EPA

Mark Kern

NHDES

Gino Infascelli
Lori Sommer

NH Fish and Game

Carol Henderson

Town of Dublin

Sterling Abram

Hoyle, Tanner and Assoc.

Edward Weingartner
Jason Lodge

CLD Engineers

John Byatt
Shannon Beaumont

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

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:

(minutes on subsequent pages)

Finalization of the February 16, 2010 Meeting Minutes	3
Andover, 14679A (non-Federal)	3
Andover, X-A001(423), 15901	4
Lisbon, X-A001(172), 16184	5
Hooksett, 15803 (non-Federal).....	7
Dublin 15684 (non-Federal).....	8

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

Hooksett, 15803 (non-Federal)

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

The design of the project will perpetuate the existing design in the vicinity of Pinnacle Pond. Given the sensitive nature of this waterbody, all drainage will continue to be directed away from the pond to other outlet areas. Although there are Natural Heritage records associated with the

project, NHB has indicated that no impacts are expected. The project area has been cleared for archaeological sensitivity.

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

Wetland impacts for this project total 8,441 sf (3,542 perm; 4,899 temp). There are 657 linear feet of stream/bank impacts. Gino Infascelli indicated that the application package submitted was inadequate. Plan sheets were not at a readable scale. Kevin Nyhan indicated that he would coordinate with Matt Urban and GZA to provide better application materials.

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

Agency File Numbers: Natural heritage: NHB09-1623

This project was previously reviewed on the following date: 1/20/2010



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

SHORELAND IMPACT PERMIT 2011-00523

Permittee: NH Dept of Transportation,
Po Box 483
Concord, NH 03301
Project Location: I-93 NH DOT Row, Hooksett
Hooksett Tax Map/Lot No.
Waterbody: Pinnacle Pond

**NOTE--
CONDITIONS**

Page 1 of 2

APPROVAL DATE: 04/01/2011

EXPIRATION DATE: 04/01/2016

Based upon review of the above referenced application, in accordance with RSA 483-B, a Shoreland Impact Permit was issued. This permit shall not be considered valid unless signed as specified below.

PERMIT DESCRIPTION: Impact 18,885 sq ft for the purpose of expanding an existing public roadway.

THIS APPROVAL IS SUBJECT TO THE FOLLOWING PROJECT SPECIFIC CONDITIONS:

1. All work shall be in accordance with plans by GZA Environmental, Inc., dated January, 2011, and received by the Department of Environmental Services ("DES") on March 15, 2011.
2. No increases in impervious area shall occur beyond that necessary for expanding the public roadway as delegated on plans received by DES on March 15, 2011.
3. This permit is contingent upon receiving all necessary approvals from the NH DES Wetlands Bureau for proposed impacts jurisdictional under RSA 482-A.
4. All activities conducted in association with the completion of this project shall be conducted in a manner that complies with applicable criteria of Administrative Rules Chapter Env-Wq 1400 and RSA 483-B during and after construction.
5. Erosion and siltation control measures shall be installed prior to the start of work, be maintained throughout the project, and remain in place until all disturbed surfaces are stabilized.
6. Erosion and siltation controls shall be appropriate to the size and nature of the project and to the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to wetlands or surface waters.
7. No person undertaking any activity in the protected shoreland shall cause or contribute to, or allow the activity to cause or contribute to, any violations of the surface water quality standards established in Env-Ws 1700 or successor rules in Env-Wq 1700.
8. Any fill used shall be clean sand, gravel, rock, or other suitable material.
9. The contractor responsible for completion of the work shall utilize techniques described in the New Hampshire Stormwater Manual, Volume 3, Erosion and Sediment Controls During Construction (December 2008).

10. Within three days of final grading or temporary suspension of work in an area that is in or adjacent to wetlands or surface waters, all exposed soil areas shall be stabilized by seeding and mulching during the growing season, or if not within the growing season, by mulching with tack or netting and pinning on slopes steeper than 3:1.

11. Silt fencing must be removed once the area is stabilized.

GENERAL CONDITIONS THAT APPLY TO ALL DES SHORELAND IMPACT PERMITS:

1. A copy of this permit shall be posted on site during construction in a prominent location visible to inspecting personnel;
2. This permit does not convey a property right, nor authorize any injury to property of others, nor invasion of rights of others;
3. The Wetlands Bureau shall be notified upon completion of work;
4. This permit does not relieve the applicant from the obligation to obtain other local, state or federal permits, and/or consult with other agencies as may be required (including US EPA, US Army Corps of Engineers, NH Department of Transportation, NH Division of Historical Resources (NH Department of Cultural Resources), NHDES-Alteration of Terrain, etc.);
5. Transfer of this permit to a new owner shall require notification to and approval by the Department;
6. This permit shall not be extended beyond the current expiration date.
7. This project has been screened for potential impacts to known occurrences of rare species and exemplary natural communities in the immediate area. Since many areas have never been surveyed, or have received only cursory inventories, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species.

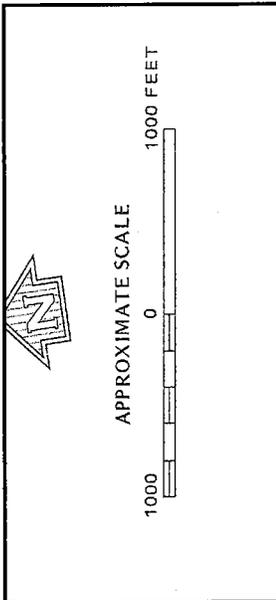
APPROVED: _____

Jason Aube
DES Wetlands Bureau

BY SIGNING BELOW I HEREBY CERTIFY THAT I HAVE FULLY READ THIS PERMIT AND AGREE TO ABIDE BY ALL PERMIT CONDITIONS.

OWNER'S SIGNATURE (required)

CONTRACTOR'S SIGNATURE (required)



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
HOOKSETT,
NEW HAMPSHIRE
MERRIMACK COUNTY

PANEL 5 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
330115 0005 C

MAP REVISED:
MARCH 12, 1982



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

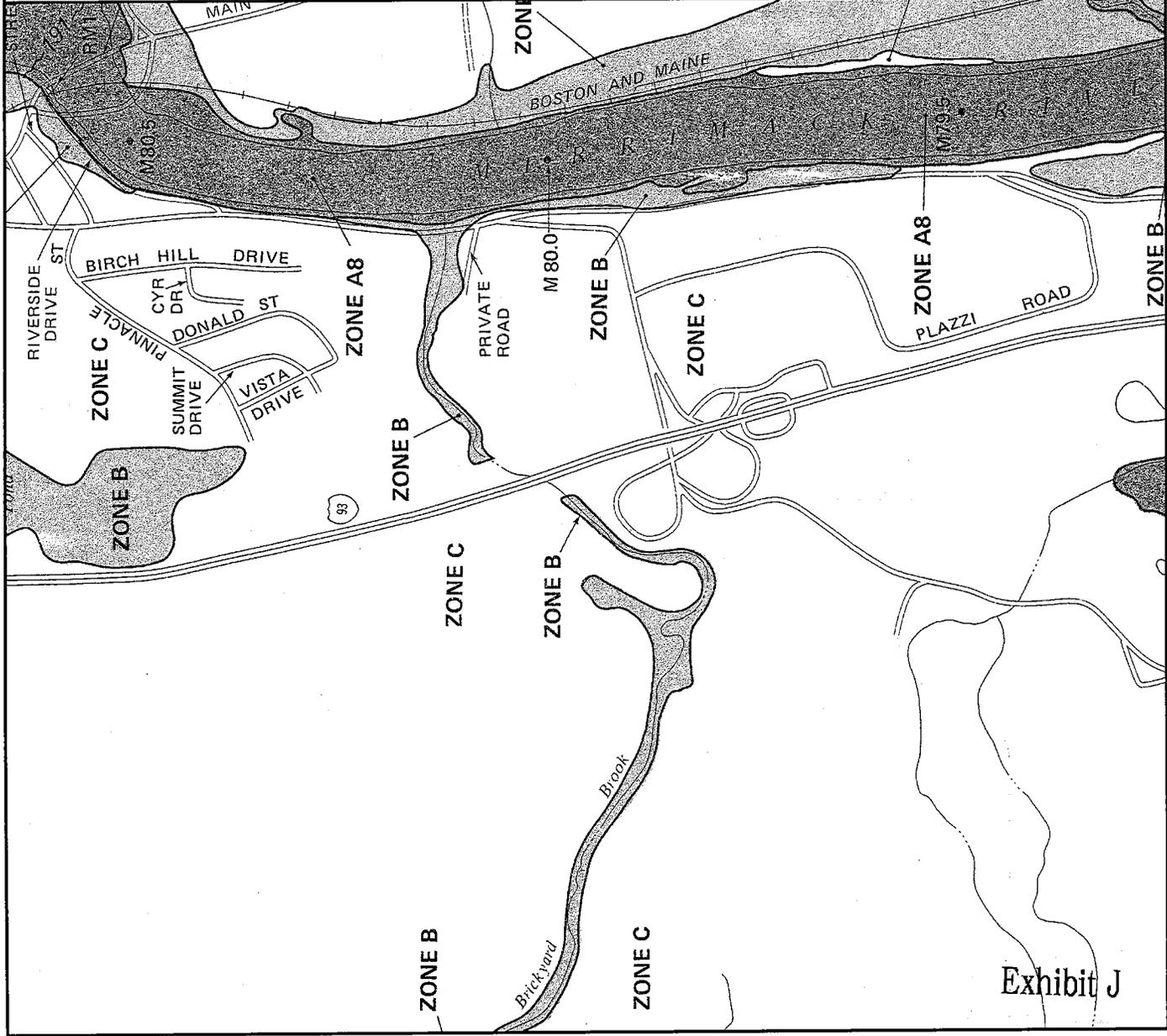
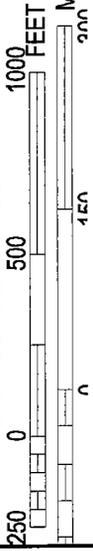


Exhibit J



MAP SCALE 1" = 500'



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0678E

FIRM FLOOD INSURANCE RATE MAP MERRIMACK COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS)

PANEL 678 OF 705
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOW, TOWN OF	330107	0678	E
HOCKSETT, TOWN OF	330115	0678	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown below should be used on insurance applications for the subject community.



MAP NUMBER
33013C0678E
EFFECTIVE DATE
APRIL 19, 2010

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program, flood maps check the FEMA Flood Map Store at www.msc.fema.gov



KTN



JOHN H. LYNCH
GOVERNOR

STATE OF NEW HAMPSHIRE
OFFICE OF ENERGY AND PLANNING
4 Chenell Drive
Concord, NH 03301-8501
Telephone: (603) 271-2155
Fax: (603) 271-2615



www.nh.gov/oep

MEMORANDUM

TO: Kevin T. Nyhan
Department of Transportation
Bureau of Environment

FROM: Jennifer Czysz *JC*
Senior Planner

DATE October 8, 2009

SUBJECT: Hooksett, 15803

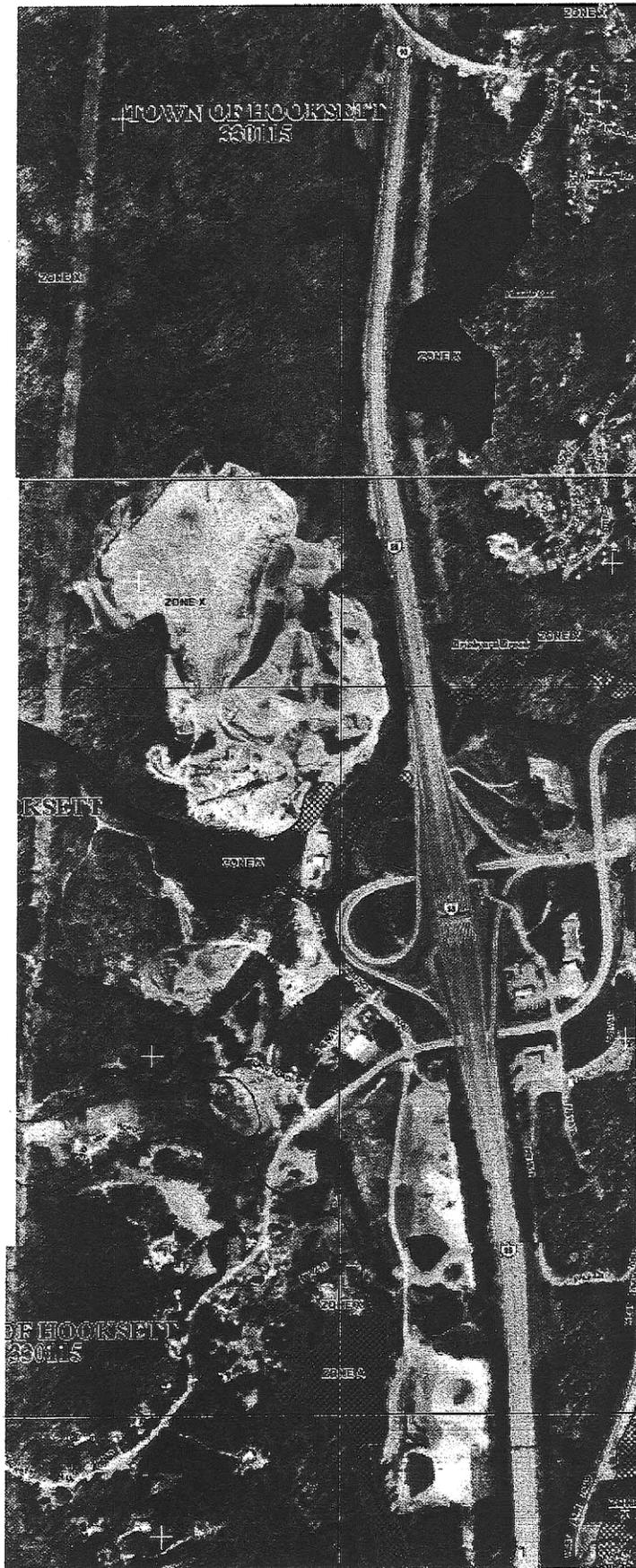
I am writing in reference to your letter dated October 7, 2009 regarding the above-referenced project. I have reviewed and attached a portion of the Flood Insurance Rate Map for the proposed area. It appears the proposed project is not located in a special flood hazard area (Zone A or AE) and therefore requires no further action in regards to the requirements of the National Flood Insurance Program. Adjacent to the project area, north of the tolls, there are 500-year floodplains (Zone X) worth noting. However, the 500-year floodplain is not regulated by the NFIP requirements contained in the town's floodplain management ordinances

If you need further assistance, please contact me at 271-2155 or jennifer.czysz@nh.gov.

Thank you.

RECEIVED
BUREAU OF ENVIRONMENT
OCT 12 2009
NH DEPARTMENT OF
TRANSPORTATION

**Preliminary Flood Insurance Rate Map for Merrimack County
Scheduled to Become Effective on April 19, 2010**





United States Department of the Interior



FISH AND WILDLIFE SERVICE

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

January 3, 2011

To Whom It May Concern:

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

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

Based on the information currently available, no federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service (Service) are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required.

This concludes the review of listed species and critical habitat in the project location(s) and environs referenced above. No further Endangered Species Act coordination of this type is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

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

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

Exhibit K

Kevin Nyhan

From: Tuttle, Kim [Kim.Tuttle@wildlife.nh.gov]
Sent: Monday, February 14, 2011 10:01 AM
To: Kevin Nyhan
Cc: Henderson, Carol
Subject: RE: Hooksett, 15803 (NHB09-1623)(attached) superceded by NHB10-2792

Kevin,

The NHBG Nongame and Endangered Species Program has reviewed NHB10-2792 for the proposed open road tolling for the Hooksett toll plaza. The following wildlife species were identified in the vicinity of the project:

A Noctuid Moth (*Lithophane thaxteri*)* -- -- , Barrens Xylothe (Xylothe capax)* SC --, Brook Floater (*Alasmidonta varicosa*) E -- . The area is also known to be used by wintering bald eagles. We do not expect impacts to any of the above named species as habitat does not appear to be affected by the project. Please feel free to call me if you have any further questions about this job.

Sincerely,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
Nongame and Endangered Species Program
603-271-6544

From: Kevin Nyhan [mailto:KNyhan@dot.state.nh.us]
Sent: Monday, February 14, 2011 9:42 AM
To: Melissa L. Coppola; Tuttle, Kim
Subject: RE: Hooksett, 15803 (NHB09-1623)(attached) superceded by NHB10-2792

Melissa/Kim,

Attached is the NHB report for this project. GZA, who is doing the wetlands application for us, updated the NHB (10-2792), which is largely the same. Please comment.

This project involves the conversion of the Hooksett toll plaza to open road tolling. The facility will be expanded/ widened with approximately 5,200 sf of permanent impact to wetlands.

The report indicates that Grassleaf Goldenrod/ Sandy pond shore system is located at Pinnacle Pond. Recognizing this is a sensitive system, the Department has designed the facility to perpetuate the drainage, and make sure that no drainage is directed to the pond. There will be no change in hydrology to the pond as a result of this project. Moreover, there will be no direct impacts to this pond.

Bald eagle was located in the project area as well. Kim, do you have any comments on this species relative to the project?

Thanks, Kevin

Kevin T. Nyhan
Senior Environmental Manager
NHDOT Bureau of Environment
John O. Morton Building, Room 160
7 Hazen Drive, PO Box 483
Concord, NH 03302-0483
Tel. 603.271.1553

Exhibit L

9/23/2011



NEW HAMPSHIRE NATURAL HERITAGE BUREAU
DRED - DIVISION OF FORESTS & LANDS
PO Box 1856 -- 172 PEMBROKE ROAD, CONCORD, NH 03302-1856
(603) 271-2214

To: Kevin Nyhan, DOT-Bureau of Environment
From: Melissa Coppola, NHB-Environmental Information Specialist
Date: February 14, 2011
Subject: NHB10-2792 (old NHB09-1623)

This memo is a follow-up to NHB10-2792 which had indicated a population of state-threatened fine grass-leaved goldenrod (*Euthamia caroliniana*) and an exemplary sandy pond shore system in the vicinity of the proposed project. The Natural Heritage Bureau (NHB) requested further information about the project to determine the potential for impacts to these features. NHB requested this information from NHSC, Inc in November 2010. Project information was provided by NHDOT in February 2011.

Based on the information provided (project narrative), NHB does not expect impacts to Pinnacle Pond and the associated exemplary community and rare plant species. Critical to this determination is the fact that that no drainage is directed to the pond and there will be no change in hydrology to the pond as a result of this project.

Should you have any further questions, contact me at 603-271-2215 ext. 323 or at Melissa.Coppola@dred.state.nh.us.



Memo

To: Kevin Nyhan, NH Department of Transportation
 PO Box 483, 7 Hazen Drive
 Concord, NH 03303-0483

From: Melissa Coppola, NH Natural Heritage Bureau

Date: 8/18/2009 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB09-1623

Project type: Shoreland Construction/Alteration:
 Construction requiring Shoreland Permit,
 etc.

Town: Hooksett

Location: I-93, approximately 1 mile north and south of the toll plaza

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 on the state-listed *Alasmidonta varicosa* (brook floater) in the Merrimack River.

Invertebrate Species

- A Noctuid Moth (*Lithophane thaxteri*)*
- Barrens Xylotype (*Xylotype capax*)*
- Brook Floater (*Alasmidonta varicosa*)

State ¹	Federal	Notes
--	--	Contact the NH Fish & Game Dept (see below).
SC	--	Contact the NH Fish & Game Dept (see below).
E	--	Contact the NH Fish & Game Dept (see below).

Natural Community

- Sandy pond shore system

State ¹	Federal	Notes
--	--	These natural communities are extremely vulnerable to trampling, and tend to disappear from areas that experience even moderate recreational use. They are vulnerable to changes to the hydrology of the pond or lake.

Plant species

- Grassleaf Goldenrod (*Euthamia caroliniana*)

State ¹	Federal	Notes
E	--	Threats include water level manipulations of ponds, pond shore development, heavy recreational use, and herbiciding. Increased nutrient levels, e.g., from septic runoff, is also a threat.

- Wild Lupine (*Lupinus perennis*)

This wildflower grows in extremely dry, sandy openings and is easily identified in the field (see any wildflower guide) between early May and August. It is tolerant of surrounding disturbance and depends upon periodic mowing (or, historically, wildfire) to eliminate trees that would otherwise shade it out. It does not transplant

Memo



NH NATURAL HERITAGE BUREAU

well due to a tap root that can be more than three feet long.

Vertebrate species

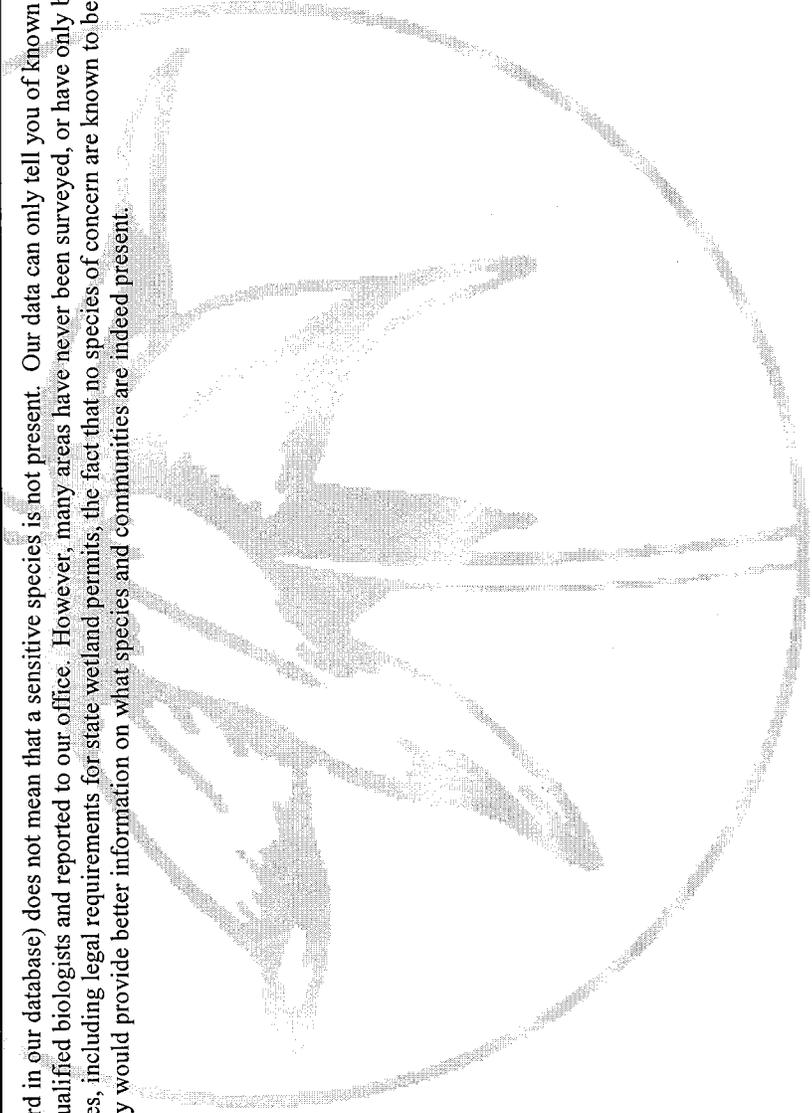
Swamp Darter (*Etheostoma fusiforme*)

State ¹	Federal	Notes
SC	--	Contact the NH Fish & Game Dept (see below).

¹Codes: "E" = Endangered, "T" = Threatened, "--" = 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. For some purposes, including legal requirements for state wetland permits, the fact that no species of concern are known to be present is sufficient. However, an on-site survey would provide better information on what species and communities are indeed present.



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

DRED/NHB
PO Box 1856
Concord NH 03302-1856

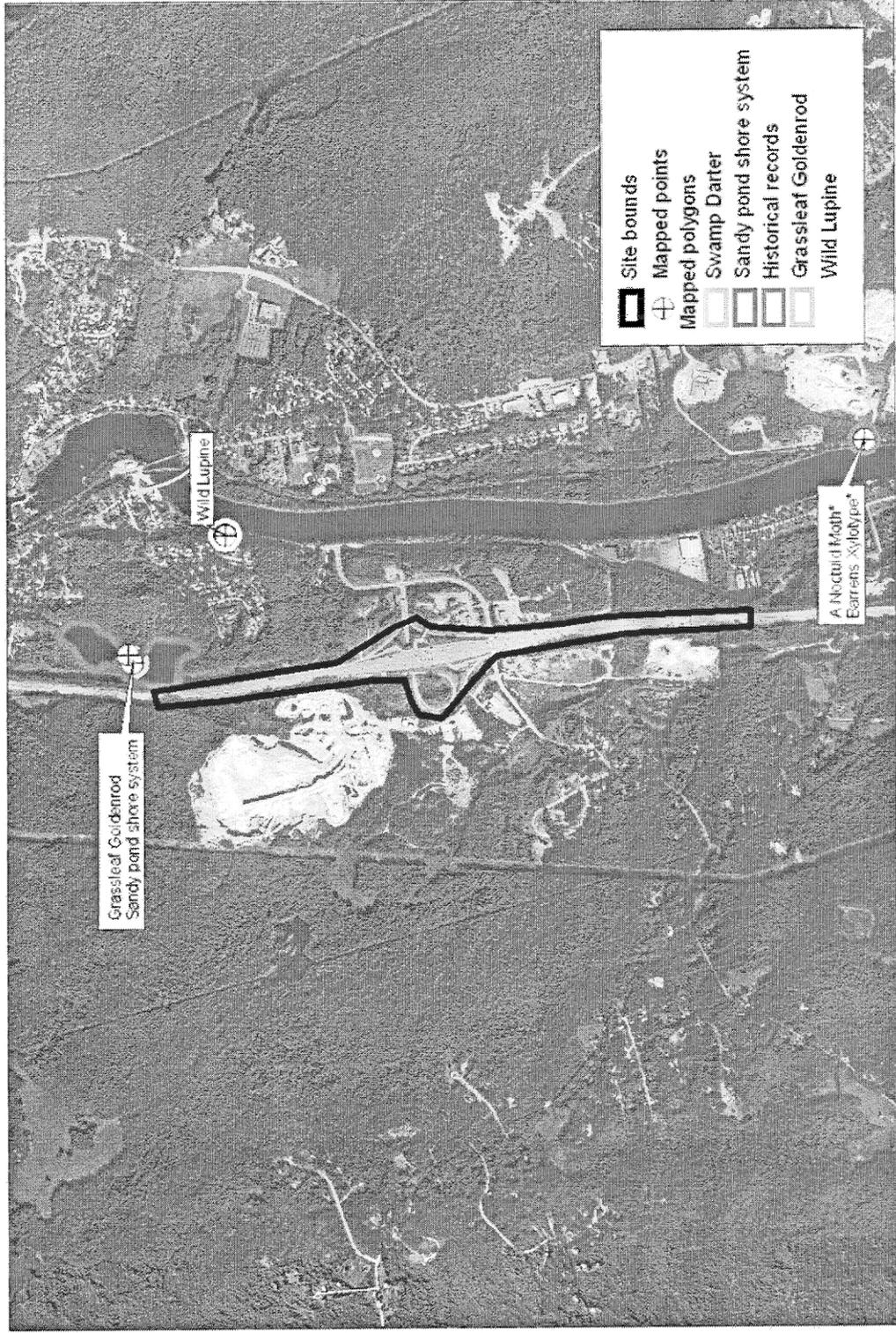
NHB09-1623



NH NATURAL HERITAGE BUREAU

Known locations of rare species and exemplary natural communities

Note: Mapped locations are not always exact. Occurrences that are not in the vicinity of the project are not shown.



*Historical record



Valid for one year from this date. 16 Aug 2009

New Hampshire Natural Heritage Bureau - Animal Record

Barrens Xylotype (*Xylotype capax*)

Legal Status

Federal: Not listed
State: SC

Conservation Status

Global: Apparently secure but with cause for concern
State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Historical records only - current condition unknown.
Comments on Rank:

Detailed Description: 1985: RAWINSKI SPECIMEN TAKEN.
General Area: 1985: PITCH PINE/SCRUB OAK BARRENS.
General Comments: FIELD WORK NEEDED.
Management
Comments:

Location

Survey Site Name: Hooksett Riverbluff Barrens
Managed By:

County: Merrimack	USGS quad(s): Manchester North (4307114)
Town(s): Hooksett	Lat, Long: 430407N, 0712745W
Size: 2.8 acres	Elevation: 250 feet

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

Directions: HOOKSETT RIVERBLUFF BARRENS. CA. 0.5 MILE SOUTH OF HOOKSETT MEMORIAL SCHOOL ALONG RAVINE AND RIVER BANK.

Dates documented

First reported: 1985 10-07 Last reported: 1985-10-07

Rawinski, Tom. 1985. Field survey to Hooksett Riverbluff Barrens on 7 October.

NHB09-1623

EOCODE:

EP00000015*015*NH

New Hampshire Natural Heritage Bureau - Plant Record

Wild Lupine (*Lupinus perennis*)**Legal Status**

Federal: Not listed
 State: Listed Threatened

Conservation Status

Global: Demonstrably widespread, abundant, and secure
 State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
 Comments on Rank:

Detailed Description: 1995: 5 plants.

General Area: 1995: A disturbed roadside that appears to be a remnant riverside barren. Associated species include *Asclepias amplexicaulis* (blunt-leaved or clasping milkweed), *Quercus rubra* (red oak), *Ceanothus americanus* var. *americanus* (redroot), *Chrysanthemum leucanthemum* (ox-eye daisy), and *Vaccinium angustifolium* (late sweet blueberry).

General Comments:

Management

Comments:

Location

Survey Site Name: Hooksett Roadside
 Managed By:

County: Merrimack
 Town(s): Hooksett
 Size: 2.8 acres

USGS quad(s): Manchester North (4307114)
 Lat, Long: 430536N, 0712802W
 Elevation: 230 feet

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

Directions: Take Rte. 3A North (West River Road) towards Hooksett to Riverside Street. Plants are scattered on the west side of 3A from the junction of Riverside Street, south to telephone pole # 29.

Dates documented

First reported: 1995-07-12

Last reported: 1995-07-12

Brumbach, W.E. 1995. Field survey to Hooksett roadside on July 12.

New Hampshire Natural Heritage Bureau - Animal Record

Swamp Darter (*Etheostoma fusiforme*)

Legal Status

Federal: Not listed
State: SC

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2005: Area 8969: 2 observed, age and sex unknown.
General Area: 2005: Area 8969: Freshwater stream or river. Clay banks, thick vegetation.
General Comments: 2005: Beaver dam upstream of culvert.
Management
Comments:

Location

Survey Site Name: Brown Brook
Managed By:

County: Merrimack	USGS quad(s): Manchester North (4307114)
Town(s): Hooksett	Lat, Long: 430621N, 0712746W
Size: .3 acres	Elevation:

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

Directions: 2005: Area 8969: Brown Brook at Merrimack Rd. bridge crossing.

Dates documented

First reported: 2005-08-01	Last reported: 2005-08-01
----------------------------	---------------------------



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



GEORGE N. CAMPBELL, JR.
COMMISSIONER

JEFF BRILLHART, P.E.
ASSISTANT COMMISSIONER

Hooksett
15803

No Historic Properties Affected Memo

Pursuant to the meeting and discussions on September 10, 2009, 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), and the US Army Corps of Engineers' *Appendix C*, the NH Division of Historical Resources and the US Army Corps of Engineers have coordinated the identification and evaluation of cultural resources with plans to widen and retrofit the existing Hooksett toll facility to implement Highway Speed (Open Road) Tolling in Hooksett, New Hampshire.

Based on these reviews, we have determined that there are no historic or archaeological resources affected in the project area and that no further survey work is needed.

We will continue to consult, as appropriate, as this project proceeds.

Joyce McKay 6/6/11
Joyce McKay Date
Cultural Resources Manager

Concurred with by the NH State Historic Preservation Officer:

Elizabeth H. Muzzey 6/2/11
Elizabeth H. Muzzey Date
State Historic Preservation Officer
NH Division of Historical Resources

c.c. Chris St. Louis, NHDHR Kevin Nyhan, DOT
Rich Roach, ACOE Dave Smith, DOT

Exhibit M

Photographs



I-93 LOOKING SOUTH



PINNACLE POND