ANNUAL WETLAND MITIGATION MONITORING REPORT
YEAR 2, 2014

MAINE TURNPIKE AUTHORITY
MILES YORK FARM BIDDEFORD WETLAND MITIGATION SITE

Maine Turnpike Widening Permits:

U. S. Army Corps of Engineers Permit 199901278
Maine DEP Permit L-19918-31-A-N, L-19918-L6-G-N

MAINE TURNPIKE AUTHORITY
2360 CONGRESS STREET
PORTLAND, MAINE 04102

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December 2014

MITIGATION REPORT
TRANSMITTAL AND SELF-CERTIFICATION

DEPARTMENT OF THE ARMY PERMIT NUMBER: 199901278
PROJECT TITLE: Miles York Farm Biddeford Wetland Mitigation Site
Maine Turnpike Authority

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ATTACHED MITIGATION REPORT
TITLE: Annual Wetland Mitigation Monitoring Report Maine Turnpike Authority
Miles York Farm Biddeford Wetland Mitigation Site

PREPARERS: Kevin Slattery, Nick Henke

DATE: December 11, 2014

CERTIFICATION OF COMPLIANCE: I certify that the attached report is accurate and discloses that the mitigation required by the Department of the Army Permit **[is]** ~~**[is not]**~~ in full compliance with the terms and conditions of that permit.

CORRECTIVE ACTION: A need for corrective action ~~**[is]**~~ **[is not]** identified in the attached report.

CONSULTATION: I ~~**[do]**~~ **[do not]** request consultation with the Corps of Engineers to discuss a corrective strategy or permit modification.

CERTIFIED: _____ 12/11/14
(Signature of permittee) Date

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LIST OF APPENDICES

PROJECT OVERVIEW/EXECUTIVE SUMMARY

This report documents the results of the second year of 10 years of post-construction monitoring at the supplemental compensation site for the southern Maine Turnpike Widening project. Following Army Corps mitigation guidance, monitoring is to be conducted in post construction years 1, 2, 3, 5, 7, and 10 and reports will be provided for subsequent monitoring years. The site is comprised of predominantly one proposed wetland cover type (forested) with a riparian component associated with Bush Brook. The site is somewhat rectangular shaped, located within a large tract of undeveloped woodland, has a diverse surface matrix of former drainage furrows and interconnecting channels, and some large upland "islands." The site is developing well and reflects the intention of the design, the desired functions are developing and the site is stable. The long term prognosis for the site is excellent. All five of the U.S. Army Corps of Engineers Success Standards for post-construction assessment of wetland mitigation sites were met at the site.

The site hydrology is indicative of wetland conditions and existing soils have strong hydric indicators at the monitoring stations. Plant densities and herbaceous covers on site are high, and planting densities are over the success standard of 500 woody plants per acre. The majority of the planted stock on site is surviving well, with the exception of balsam fir. Replacement plantings will be made in the spring of 2015 as part of the construction contract planting warrantee. The replacement planting selections will take into consideration the species performance, such that better performing plants will be used for replacements. Since the site overall plant density is exceeding the success standard listed above, no supplemental plantings are recommended at this time.

Three invasive hydrophytes; reed canary grass, purple loosestrife, and cattails were found at the mitigation site. Reed canary grass and purple loosestrife are very limited and found as individual plants in the southeast corner of the site. A small patch of reed canary grass was treated in 2013 and re-assessed in 2014. Only two or three weak stocks of the grass were observed, and marked for treatment. One single purple loosestrife plant (non-flowering) was observed and removed.

Cattails are found in limited numbers and isolated patches in the site and near the southern portion of the site, near Forested Plots 3 and 4. Cattails are colonizing the small depressions of the site where persistent water provides appropriate conditions for establishment. Hydrology adjustments were made in 2013 near Forested Plot 4 and the changes appear to have made the conditions less suitable for cattails. The cattails were showing signs of stress and declining in size and density at that location in 2014. A new patch of cattails has emerged near Forested Plot 3 that was not present during the 2013 evaluations, but does not appear to pose a threat to the site.

Glossy buckthorn is growing in nearby wetlands and over time, is likely going to become a component in the mitigation site. At this time no controls for glossy buckthorn or

cattails are proposed. Treatment of reed canary grass using herbicides will be implemented as needed in future monitoring years. Hand digging and removal of purple loosestrife will continue to be implemented as needed in future monitoring years.

The mitigation site already shows very good wildlife use. A variety of songbirds, wading birds, white tailed deer, moose, and many amphibians and reptiles use the site which is an indicator that the desired wildlife function is being achieved.

REQUIREMENTS

Mitigation Conditions

Special conditions for the project mitigation are included in the project permits in Appendix E. Both the US Army Corps of Engineers and Maine DEP permits included special conditions. Other than the recording of the protective Declaration of Covenants and Restrictions for the site, all of the special conditions have been met.

Mitigation Goals

This compensatory wetland mitigation is intended to offset impacts from the Maine Turnpike Modernization and Widening Mile 12 to Mile 42 (herein referred to as "widening project") in York and Cumberland Counties. The widening project was permitted in 1999 and constructed from 2000 to 2005. The widening project was subject to the compensation requirements of the Maine Department of Environmental Protection (Maine DEP) Natural Resources Protection Act (NRPA) (Code of Maine Rules, Chapter 310; (2) 38 M.R.S.A. Section 480-A et seq. Chapter 310); and the compensatory mitigation requirements of the U.S. Army Corps of Engineers (ACOE) Section 404 of the U.S. Clean Water Act (33 U.S.C. Section 1344). One of the original wetland compensation sites for the widening project (New Dam Road Site in Sanford) failed to completely meet the project's mitigation objectives; the ACOE and the Maine DEP requested a replacement compensatory mitigation project. Following an alternatives analysis and discussions with the ACOE and the Maine DEP, the Maine Turnpike Authority determined that the York Farm site is the most practicable replacement alternative for this project. Both permitting agencies concurred with the findings and issued permits for the construction activities at the supplemental compensation site.

The site is located south of Newtown Road, between Pool Street and West Street in Biddeford, Maine. The project site can be found on the annotated aerial photograph below (Figure 1). The approximate center point of the mitigation site is located at latitude and longitude coordinates 43.4389706 and -70.3982006 (NAD83). The site is located in the Piscataqua – Salmon Falls Watershed (HUC 8), near the boundary of the Saco River and Portsmouth Harbor Watershed (HUC 8). The mitigation site contains a

portion of Bush Brook which drains into the Little River approximately west and downstream of the proposed mitigation site (out letting into the Goosefare Bay to the south of Saco Bay).

The project is designed to provide at least 13.2 acres of primarily deciduous forested wetland through a series of enhancements/restorations to a mowed and partially drained wet meadow and a component of wetland creation. Calculations representing the areas of creation, restoration, enhancement, and preservation can be found in Table 1 reporting distributions by wetland types. The functions and values that will be provided and enhanced through implementation of this plan will include groundwater recharge, floodflow alteration and storage, water quality improvement (sediment/toxicant retention and nutrient removal), production export, wildlife habitat, and recreational opportunities (hiking and bird watching).

Maine Turnpike Authority/MaineDOT
Biddeford Mitigation Site
Locus Map

0 875 1,750 3,500
Feet

Figure 1

Table 1 Summary of Wetland Mitigation

WETLAND TYPE	PROPOSED MITIGATION (acres)				
	CREATION	RESTORATION	ENHANCEMENT	PRESERVATION	TOTAL
Forested	0.73	11.57	1.41	2.39	16.10
Riparian	0	0.40	0	0	0.40
Vernal Pool	0.10	0	0	0	0.10
TOTAL	0.83	11.97	1.41	2.39	16.60

Mitigation Success Standards

The five Success Standards for post-construction assessment of wetland mitigation sites established by ACOE are described below. The Success Standards listed below are copied from the Army Corps regulatory guidance for mitigation. Each year the mitigation project site will be monitored to determine if it meets the following standards:

Success Standard 1

The site has the hydrology as demonstrated with well data collected at least weekly from March through June or other substantial evidence, to support the designated wetland type.

Is the proposed hydrology met at the site?
What percentage of the site is meeting projected hydrology levels?
Areas that are too wet or too dry should be identified along with suggested corrective measures.

Success Standard 2

Does the site have at least 500 trees and shrubs per acre, of which at least 350 per acre are trees for proposed forested cover types, that are healthy and vigorous and are at least 18" tall in 75% of each planned woody zone AND at least the following number of non-exotic species including planted and volunteer species? Volunteer species should support functions consistent with the design goals. To count a species, it must be well represented on the site (e.g., at least 50 individuals of that species per acre).

Table 2 Volunteer and Planted Species Requirements For Success Standard

# Species Planted (Volunteer And Planted)	*Minimum # Species Required*
2	*2*
3	*3*
4	*3*
5	*4*
6	*4*
7	*5*
8	*5*
9 or More	*6*

Vegetative zones consist of areas proposed for various types of wetlands (shrub swamp, forested swamp, etc.). The performance standards for density can be assessed using either total inventory or quadrat sampling methods, depending upon the size and complexity of the site.

Success Standard 3
Does each mitigation site have at least 80% areal cover, excluding planned open water areas or planned bare soil areas (such as for turtle nesting), by noninvasive species? Do planned emergent areas on each mitigation site have at least 80% cover by noninvasive hydrophytes? Do planned scrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species? For the purpose of this success standard, invasive species of hydrophytes are:

Cattails -- Typha latifolia, Typha angustifolia, Typha glauca;
Common Reed -- Phragmites australis;
Purple Loosestrife -- Lythrum salicaria;
Reed Canary Grass -- Phalaris arundinacea; and
Buckthorn – Rhamnus frangula.

Success Standard 4
Are Common Reed (Phragmites australis), Purple Loosestrife (Lythrum salicaria), Russian and Autumn Olive (Eleagnus spp.), Buckthorn (Rhamnus frangula), Japanese knotweed (Polygonum cuspidatum) and/or Multiflora Rose (Rosa multiflora) plants at the mitigation site(s) being controlled?

Success Standard 5
Are all slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) stabilized?

SUMMARY DATA

Monitoring Methods

For the annual assessments, five fixed monitoring stations were established at the compensation site. The sites were comprised of two cover types (by design); one riparian monitoring station, and four forested stations. The stations were marked with driven re-bar and white pvc pipe, and a second pvc marker was placed nearby to establish bearing references at the station. The fixed monitoring stations were surveyed along with all planted woody stock and volunteer woody stock within a 30 foot radius, and then the information was plotted on base maps.

Assessments of planted stock survivability and health were made at each of the fixed monitoring stations. The fixed monitoring stations also were used to assess dominant herbaceous vegetation using a 5-foot radius assessment plot. All dominant herbaceous vegetation was recorded as estimated percent cover. Invasive species in the 30-foot radius assessment plots were noted. The results of the herbaceous plots are included in Appendix B.

The mitigation site was extensively walked on different occasions during the growing season to search for invasive species. The invasive species observed at the mitigation site included reed canary grass, purple loosestrife, and cattails. Although cattails are considered invasive and occur at the site they are not considered a threat to the overall mitigation site.

During site visits, wildlife use was noted. Sites were inspected for erosion, evidence of ATV or off-road vehicle use and indicators of any improper hydrology.

Supplemental Information

Per the ACOE Guidelines, monitoring reports will include the following appendices A through C:

Appendix A -- An as-built planting plan showing the location and extent of the designed plant community types (e.g., shrub swamp).

Appendix B -- A vegetative species list of herbaceous vegetation and volunteer species in each plant community type. The volunteer species list should at a minimum include those that cover at least 5% of their vegetative layer.

Appendix C -- Representative photos of each mitigation site taken from the same locations for each monitoring event.

For this report, two additional appendices are included: Appendix D – Representative photos of the site during construction, and Appendix E- Permits issued for the project which include the special mitigation conditions.

Success Standard Achievement

Summary of Monitoring Success Standards

Success Standard 1: *"The site has the hydrology, as demonstrated with well data collected at least weekly from March through June or other substantial evidence, to support the designed wetland type. Is the proposed hydrology met on the site?"*

The wetland mitigation site was established on poorly drained soils comprised of silts, silt loam and clay. The site is representative of a perched wetland system in low-lying areas, but with some slight vertical relief. These soil types are not conducive for typical groundwater measurements using groundwater monitoring wells. For this reason, site hydrology was assessed using direct observation during site visits. Overall, the primary objective of the mitigation site design was to counteract the former agricultural site modifications that drained wetland areas. In addition, two small areas of wetland creation adjacent to existing wetland were constructed by excavating to perch on site water in mound and pool micro topography and receive some surface flows from adjacent wetlands. Two vernal pools were also constructed at the site with the intent of having isolated wetland pools suitable for use by breeding amphibians.

The site hydrology was observed during several visits from spring through fall of 2014. The overall site hydrology is performing as intended, and additional water retention is occurring and altering the hydrology to more a persistent saturation condition during the growing season. Evidence of appropriate hydrology includes standing shallow water that is not persistent, water flows along the existing furrows and laterally through the interconnecting channels, and softer soils that infer saturation. The wetland creation areas have observable shallow water that varies with the precipitation and observations indicate much of those areas will develop into functional wetlands. The herbaceous species composition is reacting to the hydrology and shifting more toward hydrophytes compared with facultative and upland species. The vernal pools both retained water through the summer in 2014. Water levels dropped but the pools never completely dried. From the first and second year observations, it is becoming evident that the pools may result in persistent shallow ponds, only potentially drying out during the driest of years, and prolonged drier weather patterns.

Small hydrological modifications were made at the site in 2013 to address surplus water in two locations. One location to improve hydrology was made at the outlet of the creation area in the southern end of the site and the second adjustment was at the northern vernal pool. Both areas exhibited higher water than desired, so shallow outlet channels were hand dug to help lower water levels. Site inspections throughout 2014 found both changes continue to be working as intended.

From the second year observations, this Success Standard is being met at the site.

Success Standard 2: *"Does the site have at least 500 trees and shrubs per acre, of which at least 350 per acre are trees for proposed forested cover types that are healthy and vigorous and are at least 18" tall in 75% of each planned woody zone.*"

The site design included a very high woody tree and shrub planting density to improve the site development and help to meet the vegetative cover performance standard. The total site plantings included 10,342 trees and shrubs, made up of 16 different species. Eleven of the 16 species are trees. In total, 6,742 plants of tree varieties were used, resulting in a starting density of over 500 trees per acre. Survival of the woody vegetation remains very high. From the second year assessment of survivability, this Success Standard is being met.

Success Standard 3: *"Does each mitigation site have at least 80% areal cover, excluding planned open water areas or planned bare soil areas (such as for turtle nesting), by noninvasive species? Do planned emergent areas on each mitigation site have at least 80% cover by noninvasive hydrophytes? Do planned shrub-shrub and forested cover types have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species.*"

From the site observations and from the fixed monitoring station plots, the mitigation site has vegetative cover well over 100% in all areas. The entire site is intended to be forested cover. All five monitoring station plots have hydrophytes as the dominants in the herbaceous stratum with Forested Plot 2 and the Riparian Plot also showing dominant coverage by a facultative upland species, common cinquefoil (*Potentilla simplex*). Due to the site still being relatively new, woody species are a minor component of the cover due to the size of the plantings. Over time, as the site matures, the percentage of cover by woody species will increase dramatically. Invasive hydrophytes are not a substantive component of the site's composition, therefore this Success Standard is being met.

Success Standard 4: *"Are Common Reed (Phragmites australis), Purple Loosestrife (Lythrum salicaria), Russian and Autumn Olive (Eleagnus spp.), Buckthorn (Rhamnus frangula), Japanese knotweed (Polygonum cuspidatum) and/or Multiflora Rose (Rosa multiflora) plants at the mitigation site(s) being controlled?*"

The mitigation site has almost no invasive species. The two species listed above that were found at the site, reed canary grass and purple loosestrife, were found in extremely isolated occurrences, and measured in single plants or clumps. The purple loosestrife had not flowered in 2014 and was hand removed at the end of the 2014 growing season and the reed canary grass was flagged for treatment in 2015. This Success Standard is being met at the site.

Success Standard 5: *Are all slopes, soils, substrates, and constructed features within and adjacent to the mitigation site(s) stabilized?*

The site was constructed with minimal disturbance of soils and grading. Areas not requiring grading retained their existing herbaceous sod and remain stable. Areas that were excavated, graded or disturbed were seeded and mulched and have established suitable cover to maintain stability. No indications of site erosion, stream bank failure or movement were found. This Success Standard is being met at the site.

Vernal Pools

Two vernal pools were constructed at the compensation site. The pools are not a requirement of the overall compensation plan, but they were added to improve the habitat diversity and wildlife function of the site. The entire mitigation site was constructed during the summer and fall of 2012, which means the vernal pools started under relatively "sterile" conditions. Other than perimeter seeding with wetland seed mix, no aquatic invertebrates, leaf litter, or soils were imported to help establish the aquatic assemblage. Tree branches were added to both vernal pools for cover and for use as attachment substrates for amphibian breeding. During spring 2014, the vernal pools were assessed for species presence and abundance as a method of evaluating performance. Investigation confirmed that both pools are being used as breeding habitat by amphibian species, including spotted salamander (*Ambystoma maculatum*), wood frog (*Rana sylvaticus*), and green frog (*Rana clamitans melanota*). Spotted salamander egg masses were very abundant numbering over 100 at northern pool and nearly 200 at the southern pool. Adult species present included green frog and eastern red spotted newt (*Notophthalmus viridescens*). Hydrology appears to be resulting in persistent water, creating conditions that do not typify classic vernal or seasonal woodland pools, and in effect, is serving as ideal habitat for the above mentioned red spotted newt and green frog, which predates on the eggs, larvae, and juvenile forms of other species.

Stream Enhancement

Stream enhancement included adding rounded river stone substrates to six locations along Bush Brook. The stone covers from bank to bank and is approximately 20 linear feet long at each enhancement section. A picture of the enhancement can be found in Appendix C, which shows one stone enhancement area. In addition to the added in-water structure, riparian planting enhancements were added to both banks of Bush Brook over a distance of approximately 880 linear feet to provide a shading and cover of the watercourse. Most of the riparian plantings were speckled alders, but black spruce was also used near the northern end of the site. During the site assessment, the alders were found to be very healthy and growing vigorously. It is anticipated that the alders will develop a dense protective band along the brook's riparian zone, which will shade the water, provide food and cover for a variety of wildlife, and add to the watercourse stability.

Soils Data

Data on soil matrix, redox features, contrast, size, and texture are scheduled to be evaluated every alternate year until completion of the 10 year monitoring period. Since this is the second year of evaluation, and data was recorded for Year 1 (2013), soil data was not gathered.

Remedial Actions

Remedial actions during 2014 included minor invasive species control, which involved the hand removal of one purple loosestrife plant and flagging of a small patch of reed canary grass for treatment in 2015. Locations of the invasive plants are shown on Figure 2.

Erosion Control Measures

The site is well vegetated by herbaceous cover at both the construction/grading areas and in areas that were not modified. All areas of exposed soil were seeded and mulched and established lush herbaceous cover including the property owner access road through the site which shows established growth and does not show any signs of instability. Internal site control measures such as hay bales in swales draining toward Bush Brook, and perimeter silt fences were removed in 2013. The temporary construction access road from Newtown Road was stabilized with seeding and mulch, growth is established, and all perimeter erosion controls were removed.

Estimates of Percent Vegetative Cover for Each Mitigation Site and Percent Cover of the Invasive Species

Vegetative Cover

The site has dense herbaceous growth in most areas of the forested and riparian cover. Due to overlapping foliage, the cover exceeds 100% in all plot areas during the growing season. The coverage observed at the monitoring stations ranged from 176% to 321%. On average, the overall percent coverage observed was estimated to be 223%.

The list of herbaceous species observed at each of the fixed monitoring stations is included in Appendix B. Using the 50/20 rule for determining dominance, all fixed monitoring stations had dominance by hydrophytes, with Forested Plot 2 and the Riparian Plot also showing dominant coverage, 45% and 25% respectively, by a facultative upland species, common cinquefoil (*Potentilla simplex*). The species composition is indicative of wetland communities and the shift away from upland, facultative-upland and facultative species to more hydrophytic vegetation is occurring at the site.

Invasive Species

Cattails (*Typha latifolia*)
Cattails are not a threat at this site. Only a few very small patches of cattail plants are present at the site at the southern end of the site, near fixed monitoring stations FO 3 and FO 4. The cattails near FO 4 occur in the area where hydrological modifications were made during 2013. The cattails became established when persistent standing water provided suitable growing conditions. Since the area hydrology was adjusted, the cattail plants at this location are showing stress and reduced size and numbers. Due to the small amount of cattails, and their declining trend since remediation, they were not shown on the invasive species map. The cattails present near FO 3 were not present during the 2013 evaluation, however they only exist in limited numbers in the very small pockets of microtopography pools at the site and are not anticipated to develop into a threat to the site.

Reed Canary Grass (*Phalaris arundinacea*)
Reed canary grass was found at one location (same at 2013) near the Riparian monitoring station. The small patch of grass was treated at this location in 2013 and now is limited to a few single plants. The location of the reed canary grass is shown on the invasive species map and shown in Appendix C.

Purple Loosestrife (*Lythrum salicaria*)
One small purple loosestrife plant was found at the site near the Riparian monitoring station. The plant was too small to flower during 2014 and was removed by hand. The location of the loosestrife plant is shown on the invasive species map.

Common Reed (*Phragmites australis*)
No common reed was identified at the site.

Buckthorn (*Rhamnus frangula*)
Buckthorn is found in adjacent wetlands, particularly to the south of the mitigation site. Evidence of very small buckthorn seedlings was noted throughout the mitigation site in 2013. Assessment during 2014 monitoring suggests that much of these seedlings are actually be *Photinia melanocarpa*, a non-invasive hydrophyte, rather than buckthorn. Further verification of the presence of buckthorn is planned for subsequent monitoring years as the small seedlings grow. No control measures were undertaken during 2014.

Russian and Autumn Olive *(Eleagnus* spp.)
No Russian or autumn olive was identified at the site.

Japanese Knotweed
No Japanese knotweed was identified at the site.

Multiflora Rose *(Rosa multiflora*)
No multiflora rose was identified at the site.

Fish and Wildlife

Wildlife observed or identified by tracks, scat or vocalizations at the site include red tailed hawk, turkey vulture, bluebird, blue jay, catbird, cardinal, mourning dove, killdeer, song sparrow, eastern phoebe, eastern kingbird, tree swallow, black-capped chickadee, American robin, cedar waxwing, yellowthroat, red-winged blackbird, goldfinch, belted kingfisher, great blue heron, hairy woodpecker, American crow, white tailed deer, moose, raccoon, grey treefrog, spring peeper, American toad, green frog, pickerel frog, wood frog, spotted salamander, eastern red spotted newt, garter snake, eastern ribbon snake, and numerous insects such as dragonflies, damselflies, honeybees, and mosquitoes. The site is providing very good wildlife habitat and will continue to support this wetland function.

Planted Stock Survival

To assess the relative planted stock survival over the full monitoring period, data from the fixed monitoring stations will be used to track stock within a 30-foot radius of the five fixed monitoring stations. Stock was located in 2013 using GPS survey and recorded as alive, dead, or not found (which would potentially be used for future monitoring). The results were evaluated to determine the total stock survivability at the monitoring stations, and to assess the site-wide projected plant density. A high and low survivability can be assessed by including the missing plants in the calculation, assumed as either all alive or all dead. From this data, high and low woody plant survivability can be measured for each fixed station. A high and low average survivability can be calculated for the site by averaging the high and low survivability of the forested and riparian monitoring stations. There are no planned emergent or open water areas in the site, with the exception of the two vernal pools. The vernal pool areas were not planted and are not included in the overall woody stock site performance.

Average survivability was also calculated per species. Fifteen of the 16 species that were planted were represented in the monitoring plots. For each of these species a percent high and low survivability can also be assessed based upon including the missing plants in the calculation, assumed as either all alive or all dead.

The site had a narrow range of planted stock survivability from a low of 88% in the Forested Plot 2 to a high of 100% in the Forested Plot 1 and Riparian Stations as shown in Table 3 below. The average of the woody stock survivability for Year 2 in the forested plots was 94%. Overall, the site-wide survivability rate of 95% for the forested and riparian plots, the survivability of plantings is characterized as very high.

The construction contract for the site includes a two year establishment period for all woody stock. All dead or dying stock is to be replaced under warrantee for two years, and replacement plantings have not yet been made. Therefore, after the contractor makes replacement plantings during the spring of 2015, it is anticipated that a full complement

of live woody stock will be found at the site. Due to some site-wide species survival trends found in 2013 and 2014, there may be species substitutions made to exclude varieties that are performing very poorly.

Woody stock survivability data from the plots was projected to the equivalent number of woody trees and shrubs per acre based upon the results from each monitoring station. This projection finds a density range from a low of 432 woody trees and shrubs per acre in the Riparian Plot to a high of 663 in Forested Plot 4. Using the same low and high density method, the site wide average density per acre of woody trees and shrubs taken from the station data equates to 559 plants per acre in the forested and riparian zones. The site-wide density ratings do not take into account volunteer plants.

Currently all five plots are showing the presence of woody volunteer plants. Presence ranges from one plant in Forested Plot 4 to 11 plants in the Riparian Plot. With the inclusion of volunteers, woody tree and shrub densities increase to range from a low of 601 plants per acre in the Riparian Plot to a high of 709 plants per acre in Forested Plot 3. Volunteers are not reported in the site performance below, but notably already account for 16% of the total living woody trees and shrubs amongst the five monitoring plots. Including the woody volunteers increases the average site-wide woody plant density to 663 plants per acre.

Table 3 Woody Stock Survivability at Monitoring Stations

STATION	Dead Plants	Alive Plants	Not Found Plants	Total Planted	% Survival High	% Survival Low
FO 1	0	37	0	37	100	100
FO 2	5	38	0	43	88	88
FO 3	2	36	0	38	95	95
FO 4	3	43	0	46	93	93
RI	0	28	0	28	100	100
Ave. Forested Stations					94%	94%
Ave. Forested and Riparian					95%	95%

RI – Riparian FO = Forested

Table 4 Estimated Woody Stock Survivability and Vigor by Species

Stock Type	Common Name	Site Survey Quantity	Estimated Survival	Relative Vigor of Live Stock
Wetland Trees	Balsam Fir	900	60%	Fair to Good
	Red Maple	400	98%	Good
	Green Ash	500	90%	Very Good
	Larch	892	98%	Excellent
	American Elm	800	99%	Fair
	Black Willow	600	99%	Good
	Yellow Birch	800	98%	Good
	Grey Birch	800	96%	Good
	Black Ash	300	98%	Very Good
	Black Spruce	150	98%	Good
	Swamp White Oak	600	98%	Excellent
	TOTAL	6,742	6,223	
Wetland Shrubs	Winterberry	800	95%	Good
	Highbush Blueberry	500	98%	Good
	Pussy Willow	900	99%	Good
	Speckled Alder	900	100%	Excellent
	Red Osier Dogwood	500	99%	Very Good
	TOTAL	3,600	3,536	
	SITE TOTAL	10,342	9,759	

Scale: 80 0 80 160 240
SCALE IN FEET

No.	Revision	By	Date

Designed by:

BOYLE ASSOCIATES

HNTB
ARCHITECTS ENGINEERS PLANNERS

	By	Date		By	Date
Designed			Checked		
Drawn			In Charge of		

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MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

Biddeford Mitigation Invasive Species 2014

SHEET NUMBER:

CONTRACT: OF

CONCLUSION

All five of the success standards were met on site during the second year of monitoring and the site is developing as anticipated. The second year of monitoring indicates that the desired functions are developing on site and the site is stable. After the second year of monitoring the prognosis of the site is excellent. Plant densities and herbaceous covers on site are very high. Planting densities at the site are over the success standard of 500 plants per acre and are expected to increase as volunteers continue to colonize at the site. The site hydrology is indicative of wetland conditions and the design objectives have been accomplished. There was no erosion noted on site and all roads, channels and features are stable.

The site has three invasive species but currently none pose an immediate threat to the site. Reed canary grass, cattails, and purple loosestrife were noted in very low numbers. The loosestrife plant was removed. Glossy buckthorn is likely present in the site due to nearby populations and its tendency to spread. Buckthorn will be closely monitored at the site is future assessments. The site will continue to be monitored for all invasive species and further remediation measures may be taken if needed to maintain the performance standard.

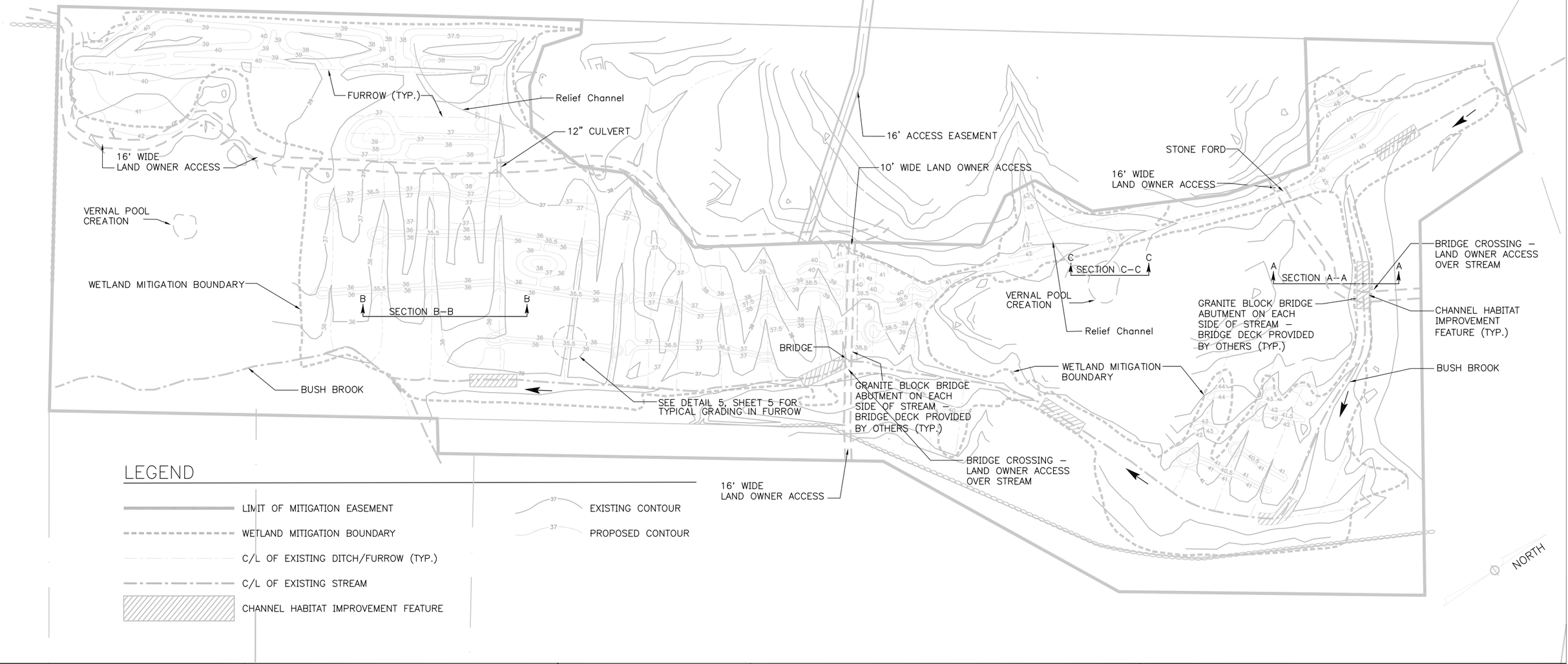
The mitigation site already shows very good wildlife use. Wildlife using the site ranges from small amphibians such as spring peeper to large mammals represented by moose. A diverse assemblage of avian users was noted at the site, and the two vernal pools are being used extensively by breeding amphibians.

The functions and values intended at the site included groundwater recharge, floodflow alteration and storage, water quality improvement (sediment/toxicant retention and nutrient removal), production export, wildlife habitat, and recreational opportunities. Evidence of the targeted functions and values is already found at the site. Most notable are the floodflow alteration and storage, production export, wildlife habitat and recreation.

The second year of monitoring continues to show positive results and indicates that the desired future cover types and functions of the mitigation plan are or will be achieved.

APPENDIX A
As-Built Planting Plan

Mitigation Easement	29.68 ac.
Compensation Area	13.2 ac.



LEGEND

- LIMIT OF MITIGATION EASEMENT
- WETLAND MITIGATION BOUNDARY
- C/L OF EXISTING DITCH/FURROW (TYP.)
- C/L OF EXISTING STREAM
- CHANNEL HABITAT IMPROVEMENT FEATURE
- EXISTING CONTOUR
- PROPOSED CONTOUR

Scale:
80 0 80 160 240
SCALE IN FEET

No.	Revision	By	Date

Designed by:

BOYLE ASSOCIATES

HNTB
ARCHITECTS ENGINEERS PLANNERS

	By	Date		By	Date
Designed			Checked		
Drawn			In Charge **of**		

HNTB CORPORATION
340 COUNTY ROAD, SUITE 6-C
Westbrook, ME 04092
TEL (207) 774-5155
FAX (207) 772-7410

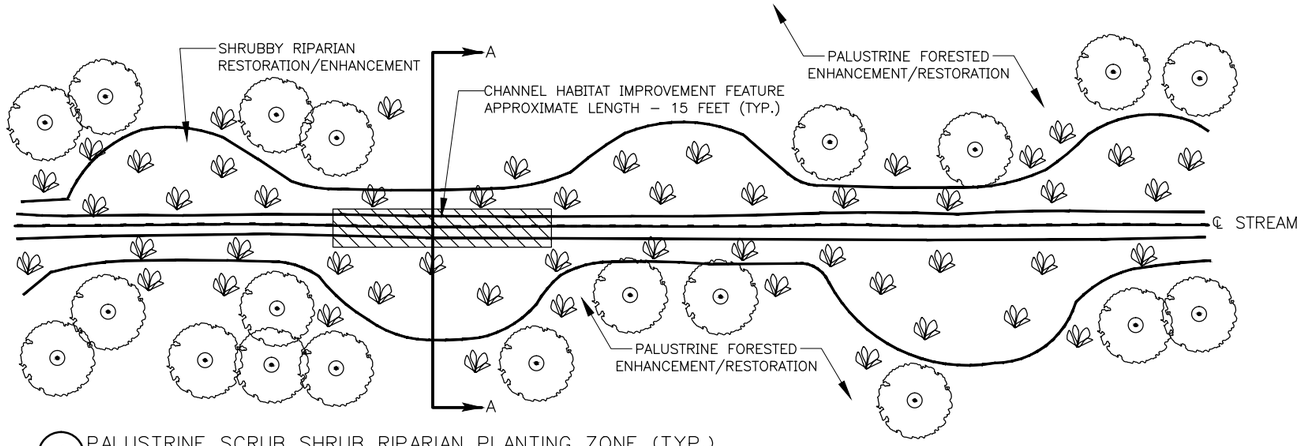
MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

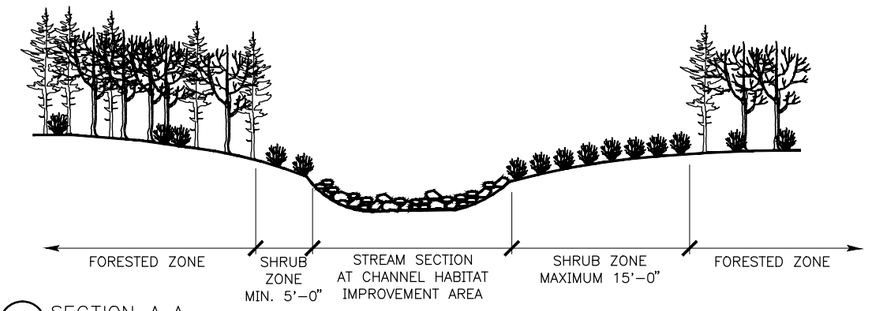
Biddeford Mitigation As-Built 2014

SHEET NUMBER:

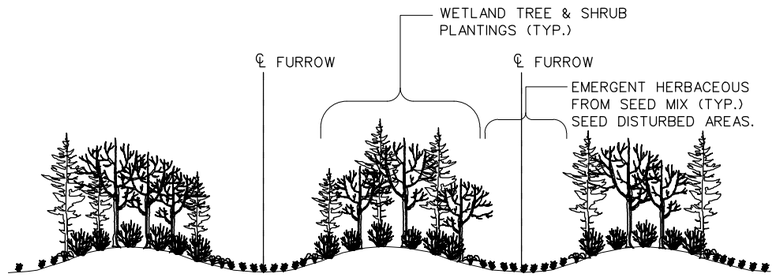
CONTRACT: OF



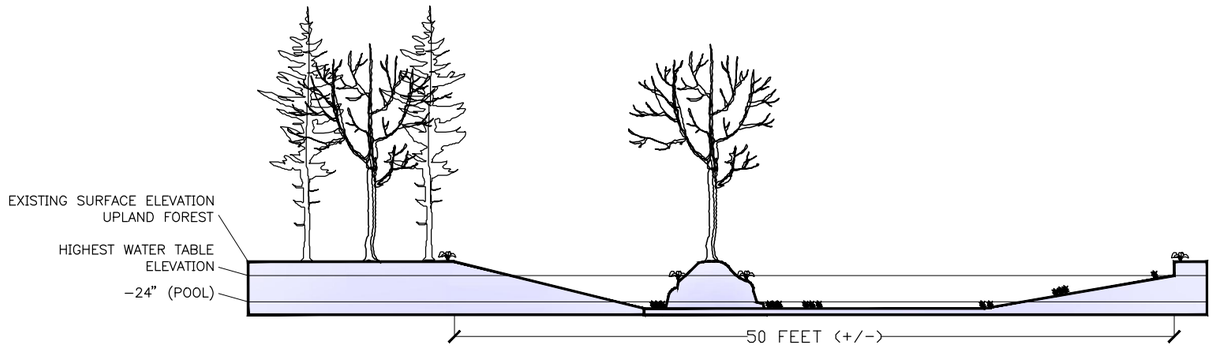
1 PALUSTRINE SCRUB SHRUB RIPARIAN PLANTING ZONE (TYP.)
NOT TO SCALE



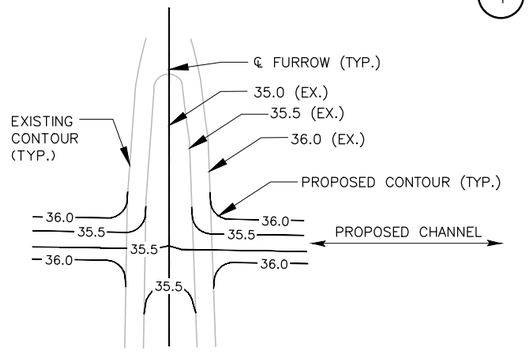
2 SECTION A-A
NOT TO SCALE



3 SECTION B-B (TYPICAL) - FORESTED WITH EMERGENT INCLUSIONS
NOT TO SCALE



4 SECTION C-C: VERNAL POOL
NOT TO SCALE



5 DETAIL GRADING IN FURROW (TYPICAL)
NOT TO SCALE

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by: BOYLE ASSOCIATES

HNTB ARCHITECTS ENGINEERS PLANNERS

	By	Date		By	Date
Designed	BA	6/2012	Checked	KLS	6/2012
Drawn	KJH	6/2012	In Charge of	RAL	6/2012

HNTB CORPORATION
340 COUNTY ROAD, SUITE 6–C
Westbrook, ME 04092
TEL (207) 774–5155
FAX (207) 772–7410

MAINE TURNPIKE

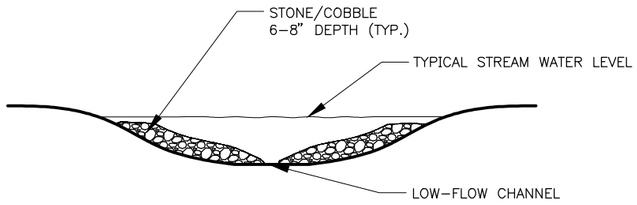
THE GOLD STAR MEMORIAL HIGHWAY

MILES YORK FARM
BIDDEFORD WETLAND MITIGATION SITE

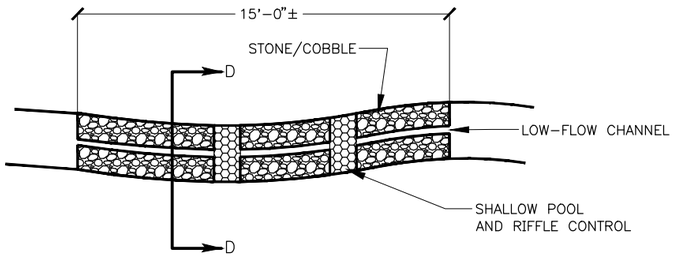
MITIGATION SITE DETAILS

SHEET NUMBER: 5

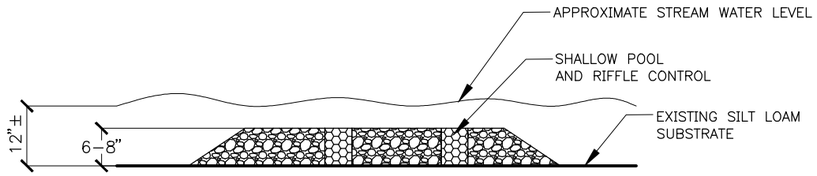
CONTRACT: 2012.18



SECTION D–D (TYPICAL)

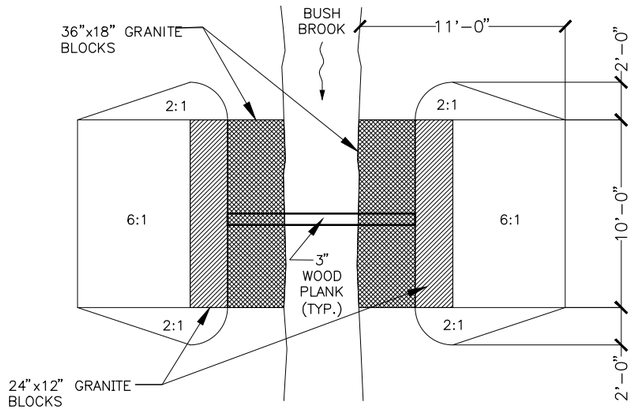


PLAN VIEW

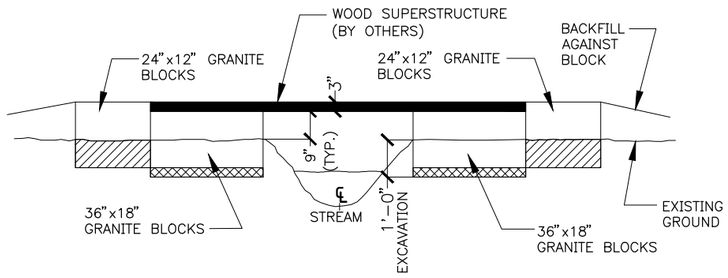


ELEVATION

1 STREAM ENHANCEMENT FEATURE DETAIL
NOT TO SCALE



PLAN



ELEVATION

2 STREAM CROSSING BRIDGE DETAIL
NOT TO SCALE

Scale: NOT TO SCALE

No.	Revision	By	Date

Designed by: HNTB ARCHITECTS ENGINEERS PLANNERS

	By	Date		By	Date
Designed	KJH	6/2012	Checked	KLS	6/2012
Drawn	KJH	6/2012	In Charge of	RAL	6/2012

HNTB CORPORATION
340 COUNTY ROAD, SUITE 6–C
Westbrook, ME 04092
TEL (207) 774–5155
FAX (207) 772–7410

MAINE TURNPIKE

THE GOLD STAR MEMORIAL HIGHWAY

MILES YORK FARM
BIDDEFORD WETLAND MITIGATION SITE

STREAM DETAILS

SHEET NUMBER: 6

CONTRACT: 2012.18

APPENDIX B
Herbaceous Species

PLOT FO 1 Page 1 9/25/2014

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	PERCENT COVER	COMMENTS
Agrostis alba	Red Top	FACW	20	
Alopecurus pratensis	Field Meadow-Foxtail	FAC	5	
Carex scoparia	Broom Sedge	FACW	20	
Calamagrostis canadensis	Blue-joint Reedgrass	OBL	5	
Lysimachia terrestris	Swamp Candle	OBL	10	
Potentilla simplex	Dwarf/common Cinquefoil	FACU	25	
Scirpus atrovirens	Green Bulrush	OBL	1	
Solidago rugosa	Wrinkled Goldenrod	FAC	15	
Spiraea latifolia	Meadowsweet	FAC+	40	Dominant
Vicia cracco	Cow Vetch	UPL	t	
Poa palustris	Fowl Bluegrass	FACW	25	
Doellingeria umbellata	Parasol White-Top	FACW	15	
Eleocharis palustris	Common Spike-Rush	OBL	75	Dominant
Carex Vulpinoidea	Common Fox Sedge	OBL	2	
Juncus effusus	Soft Rush	OBL	3	
Andropogon virginicus	Broom-Sedge	FACU	2	
Carex intumescens	Greater Bladder Sedge	FACW	8	
Photinia melanocarpa	Black Chokeberry	FAC	50	Dominant
Total			321	

PLOT FO 2 Page 1 9/25/2014

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	PERCENT COVER	COMMENTS
Agrostis alba	Red Top	FACW	55	Dominant
Alopecurus pratensis	Field Meadow-Foxtail	FAC	t	
Fragaria virginiana	Virginia Strawberry	FACU	2	
Poa palustris	Fowl Bluegrass	FACW	30	
Potentilla simplex	Dwarf/common Cinquefoil	FACU	45	Dominant
Scirpus atrovirens	Green Bulrush	OBL	2	
Spiraea latifolia	Meadowsweet	FAC+	30	
Anthoxanthum odoratum	Large Sweet Vernal Grass	FACU	10	
Carex scoparia	Broom Sedge	FACW	t	
Lysimachia terrestris	Swampcandles	OBL	1	
Euthamia graminifolia	Flat-topped Fragrant Gold	FAC	t	
Vicia cracco	Cow Vetch	UPL	t	
Spiraea tomentosa	Steeplebush	FACW	t	
Juncus effusus	Soft Rush	OBL	2	
Symphyotrichum novi-belgii	New Belgium American-Aster	FACW	t	
Symphyotrichum lateriflorum	Farewell-Summer	FAC	t	
Iris versicolor	Blue Flag Iris	OBL	t	
Total			176	

PLOT FO 3 Page 1 9/25/2014

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	PERCENT COVER	COMMENTS
Agrostis alba	Red Top	FACW	60	Dominant
Symphyotrichum lateriflorum	Farewell-Summer	FAC	3	
Elymus glaucus	Blue Wild Rye	FACU	t	
Fragaria virginiana	Virginia Strawberry	FACU	5	
Geranium molle	Dove's-foot Crane's-bill		t	
Juncus bufonius	Toad Rush	FACW	10	
Lysimachia terrestris	Swamp Candle	OBL	5	
Alopecurus pratensis	Field Meadow-Foxtail	FAC	8	
Poa palustris	Fowl Bluegrass	FACW	40	Dominant
Potentilla simplex	Dwarf/common Cinquefoil	FACU	20	
Rosa palustris	Swamp Rose	OBL	6	
Rubus flasellaris	Whiplash Dewberry	FACU	5	
Scirpus atrovirens	Green Bulrush	OBL	2	
Solidago rugosa	Wrinkled Goldenrod	FAC	t	
Vicia cracco	Cow Vetch	UPL	4	
Juncus effusus	Soft Rush	OBL	5	
Carex scoparia	Broom Sedge	FACW	2	
Carex lurida	Lurid Sedge	OBL	2	
Total			177	

PLOT FO 4 Page 1 9/25/2014

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	PERCENT COVER	COMMENTS
Agrostis alba	Red Top	FACW	10	
Alisma plantago-aquatica	Water Plantain	OBL	8	
Carex scoparia	Broom Sedge	FACW	75	Dominant
Eleocharis sp.	Spikerush		3	
Iris versicolor	Blue Flag Iris	OBL	t	
Juncus bufonius	Toad Rush	FACW	10	
Juncus effusus	Soft Rush	OBL	10	
Potentilla simplex	Dwarf/common Cinquefoil	FACU	8	
Scirpus atrovirens	Green Bulrush	OBL	30	
Solidago gigantea	Giant Goldenrod	FACW	t	
Scirpus cyperinus	Wool Grass	OBL	60	Dominant
Juncus effusus	Soft Rush	OBL	t	
Juncus canadensis	Canadian Rush	OBL	5	
Carex lurida	Lurid Sedge	OBL	20	
Eupatorium perfoliatum	Boneset	FACW	t	
Typha latifolia	Broad-Leaf Cat-Tail	OBL	t	
Rosa palustris	Swamp Rose	OBL	6	
Epilobium coloratum	Purple-Leaf Willowherb	OBL	t	
Lysimachia terrestris	Swampcandles	OBL	t	
Hypericum sp.			t	
Onoclea sensibilis	Sensitive Fern	FACW	t	
Total			240	

+

PLOT RI Page 1 9/25/2014

SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	PERCENT COVER	COMMENTS
Agrostis alba	Red Top	FACW	20	Dominant
Carex scoparia	Broom Sedge	FACW	50	Dominant
Calamagrostis canadensis	Blue-joint Reedgrass	OBL	5	
Juncus canadensis	Canadian Rush	OBL	2	
Glyceria canadensis	Canada Manna Grass	OBL	8	
Iris versicolor	Blue Flag Iris	OBL	2	
Juncus bufonius	Toad Rush	FACW	10	
Juncus effusus	Soft Rush	OBL	5	
Lysimachia terrestris	Swamp Candle	OBL	15	
Poa palustris	Bluegrass	FACW	20	Dominant
Potentilla simplex	Dwarf/common Cinquefoil	FACU	25	Dominant
Scirpus cyperinus	Wool Grass	OBL	4	
Spartina pectinata	Freshwater Cord Grass	FACW	t	
Symphyotrichum lateriflorum	Farewell-Summer	FAC	20	Dominant
Symphyotrichum novi-belgii	New Belgium American-Aster	FACW	10	
Scirpus atrovirens	Green Bulrush	OBL	t	
Carex crinita	Fringed Sedge	OBL	5	
Solidago gigantea	Giant Goldenrod	FACW	t	
Vicia cracco	Cow Vetch	UPL	t	
Carex intumescens	Greater Bladder Sedge	FACW	t	
Total			201	

APPENDIX C
Photographs from Site and Monitoring Stations

Forested Station 1 – view east

Forested Station 2 – view east

Forested Station 3 – view east

Forested Station 4 – view northeast

Riparian Station – view southeast

Northern vernal pool – view to east

Site where Reed Canary Grass (Phalaris arundinacea) was remediated in 2013 still showing a few remaining plants.

Stone stream enhancements of Bush Brook.

Site overview near southern end of site – view northeast.

Site overview from middle of site - view to the south.

APPENDIX D
Photographs from Construction

Mitigation site – hayfield prior to construction – view to south from middle of site.

Mitigation site – prior to construction – view to northeast at Bush Brook.

Mitigation site – during construction showing micro-grading areas and coarse woody debris.

Mitigation site – during construction near excavated creation area in southern end of site. View to northeast.

Mitigation site – during construction immediately after plantings and seeding.

Mitigation site – post construction view after plantings and seeding.

APPENDIX E
Project Permits

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-R-51
Corps Permit No. NAE-1999-01278

July 16, 2012

Stephen R. Tartre, PE
Maine Turnpike Authority
2360 Congress Street
Portland, Mane 04102

Dear Mr. Tartre:

This concerns your Department of the Army permit, number NAE-1999-01278 which authorized the filling of waterways and wetlands between York and Scarborough, Maine in order to widen a section of the Maine Turnpike.

In accordance with our multi-year discussions concerning the authorized mitigation work off New Dam Road at Sanford, Maine, the permit is hereby amended to authorize supplemental compensatory mitigation. Supplemental mitigation will occur at a site identified as "The York Farm", off Newtown Road at Biddeford, Maine. Approximately 13.2 acres of primarily deciduous forested wetland will be re-established or established within a mowed and partially drained wet meadow. This work is detailed in the attached document entitled "REPLACEMENT COMPENSATORY MITIGATION PLAN: Maine Turnpike Authority" dated "June 2011".

The conditions of the original permit that are specific to the widening construction have been fully complied with. The following conditions apply to the new mitigation work:

1. Mitigation work shall be completed within one year of this letter unless the Corps provides a written extension.

2. Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be marked with the words "Permit No. NAE-1999-01278" and shall be submitted via: a) MAIL: PATS Branch - Regulatory Division, Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751, or b) FAX: (978) 318-8303. Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit.

3. Invasive species control over the entire mitigation sit shall run concurrent with the multi-year monitoring plan for the site. Small patches of invasive species must be eliminated during the entire monitoring period; large patches must be aggressively treated and the treatment documented in the annual monitoring report(s). A summary of the invasive species control and

supporting photographic documentation shall be completed and submitted to the NAE Regulatory Division no later than December 15 of each year being monitored. Failure to perform the monitoring and submit the report constitutes permit non-compliance. A self-certification form will be completed, signed as the transmittal coversheet for each annual summary, and shall indicate the permit number and the reporting year (i.e first year, second year).

4. Prior to being onsite, the mitigation contractor(s) shall thoroughly inspect and remove seeds, plant material, soil, mud, insects, and other invertebrates on all equipment, including construction mats, to be used on the project site to prohibit introduction of invasive organisms. At a minimum, the following shall be inspected and cleaned on terrestrial vehicles where applicable:

Rubber Tired Vehicles - Crevices in upper surface and panels, tires, rims, and fender wells, spare tire mounting area, bumpers, front and rear quarter panels, around and behind grills, bottom of radiator vent openings, brake mechanisms, transmission, stabilizer bar, shock absorbers, front and rear axles, beds, suspension units, exhaust systems, light casings, and mirrors.

Tracked Land Vehicles - Crevices in upper surface and panels, top of axles and tensioners, support rollers, between rubber or gridded areas, beneath fenders, hatches, under casings, and grills.

Interiors of All Vehicles - Beneath seats, beneath floor mats, upholstery, beneath foot pedals, inside folds of gear shift cover.

5. The permittee shall execute and record a conservation easement or deed restriction with the registry of deeds for the City of Biddeford and the State of Maine, within 120 days of the date of this letter. A copy of the executed and recorded document must be sent to this office within 30 days of the date it was recorded. The conservation easement or deed restriction shall enable the site or sites to be protected in perpetuity from any future development. The conservation easement or deed restriction shall expressly allow for the creation, restoration, remediation and monitoring activities required by this permit on the site or sites. It shall prohibit all other filling, clearing, and other disturbances (including vehicle access) on these sites except for activities explicitly authorized by the Corps of Engineers in these approved documents.

6. Your responsibility to complete the required supplemental compensatory mitigation will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the Corps of Engineers. The term "mitigation success" means success as defined in the mitigation plan this permit requires you to implement. Demonstration of success under this permit shall consist of the required mitigation monitoring, corrective measures, submittal of mitigation monitoring reports, and a final wetland assessment.

7. This authorization requires you to 1) notify us before beginning the required mitigation work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Mitigation Work Start Notification Form to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://per2.nwp.usace.army.mil/survey.html

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Frank J. Del Giudice
Chief, Permits & Enforcement Section
Regulatory Division

Attachments
Copy Furnished:
Kevin Slattery - HNTB

STATE OF MAINE

Department of Environmental Protection

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
ACTING COMMISSIONER

September, 2011

Maine Turnpike Authority
ATTN: Steve Tartre
2360 Congress St.
Portland, ME 04102

RE: Natural Resources Protection Act Application, Biddeford, DEP #L-19918-L6-G-N

Dear Mr. Tartre:

Please find enclosed a signed copy of your Department of Environmental Protection land use permit. You will note that the permit includes a description of your project, findings of fact that relate to the approval criteria the Department used in evaluating your project, and conditions that are based on those findings and the particulars of your project. Please take several moments to read your permit carefully, paying particular attention to the conditions of the approval. The Department reviews every application thoroughly and strives to formulate reasonable conditions of approval within the context of the Department's environmental laws. You will also find attached some materials that describe the Department's appeal procedures for your information.

If you have any questions about the permit or thoughts on how the Department processed this application please get in touch with me directly. I can be reached at *592.1692* or at Marybeth.richardson@maine.gov.

Sincerely,

Marybeth Richardson
Division of Land Resource Regulation
Bureau of Land & Water Quality

pc: File

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST

BANGOR
106 HOGAN ROAD
BANGOR ME 04401
(207-941-4570 FAX 207-941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 764-3143

WEB SITE: WWW.MAINE.GOV/DEP

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION
AUGUSTA, ME 04333

DEPARTMENT ORDER

IN THE MATTER OF

MAINE TURNPIKE AUTHORITY	) NATURAL RESOURCES PROTECTION
Biddeford, York County	) STREAM AND WETLAND ALTERATION
REPLACEMENT WETLAND COMPENSATION	) WATER QUALITY CERTIFICATION
L-19918-L6-G-N (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act, the Department of Environmental Protection has considered the application of the MAINE TURNPIKE AUTHORITY with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History of Project: In Board Order #L-19918-31-A-N, dated October 23, 1999, the Board approved the modernization and widening of the Maine Turnpike from Mile 12 in York to Mile 42 in Scarborough. The project was to be completed over a five-year period starting in 2000, and included impacts to 53 streams and 230 freshwater wetlands, resulting in a loss of approximately 30 acres of freshwater wetland habitat. To compensate for these impacts, the applicant proposed to create wetlands at a former gravel pit site in Sanford, called the New Dam Road site. The New Dam Road site was constructed in 2004 but exhibited excessive groundwater inundation during subsequent annual monitoring events. In 2010, the site was determined by the applicant as not providing all of the functions and values of the wetlands altered by the widening project. Based upon a review of the entire original wetland compensation package and a compilation of successful wetland areas at the New Dam Road site, the Department and the U. S. Army Corps of Engineers determined that the mitigation shortfall is 13.2 acres of forested wetland.

B. Summary: The applicant proposes to supplement the New Dam Road compensation site with an alternative compensation site, known as the York Farm Site. At the York Farm Site, 14.2 acres of predominantly forested wetland area is proposed, comprised of enhancement of 1.4 acres of fringing emergent wetland; restoration of 12.1 acres of drained, mowed wetland; creation of 0.7 acre of forested wetland; restoration and enhancement of 2,966 linear feet of riparian wetland; and creation of two vernal pools in wooded uplands. The mitigation plan includes enhancements of Bush Brook, a stream that flows through the site, by adding 90 linear feet of riffle areas, comprised of six, 15-foot long sections of river rock in the channel, and by adding shrubs along the riparian floodplain. The project also includes the permanent preservation of 15.5 acres of adjacent wetland and upland buffer. In total, the proposed enhancement/restoration, creation and preservation areas combined will be approximately 29.7 acres.

The project site is located on Newtown Road in the City of Biddeford, and is shown on a set of plans, the first of which is titled “Maine Turnpike Modernization & Widening, Mile 12 to 42 – Miles York Farm Biddeford Mitigation – Project Location,” prepared by HNTB and dated May 2011, and on a set of plans, the first of which is titled “Miles York Farm, Biddeford – Mitigation Site Grading Plan,”

prepared by HNTB and Boyle Associates and dated April 2011. The applicant proposes to access the site via an existing woods road that connects to Newtown Road.

Board Order #L-19918-31-A-N approved resource impacts to several types of freshwater wetlands, including forested and emergent wetlands and a number of stream alterations. The York Farm Site is designed to compensate for a portion of those impacts, and includes restorations and enhancements to wetlands and a stream of similar characteristics as the areas impacted by the widening and modernization project.

Concurrent with this application, the applicant submitted a Permit-by-Rule Notification form indicating that activities within a significant vernal pool habitat and two stream crossings will be conducted in accordance with the Natural Resources Protection Act, Chapter 305, Sections 10 and 19.

C. Current Use of the Site: The site is an existing hayfield containing a series of agricultural ditches. Extensive farming and logging has occurred on the site over the previous century. Occasional brush hogging and haying are currently the main activities on the site.

2. EXISTING SCENIC, AESTHETIC, RECREATIONAL OR NAVIGATIONAL USES:

The proposed project is not located in a scenic resource visited by the general public, in part, for the use, observation, enjoyment and appreciation of its natural and cultural visual qualities. The proposed project will not result in any permanent features on the site that would dominate the landscape.

The Department did not identify any issues involving existing recreational and navigational uses.

The Department finds that the proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational or navigational uses of the protected natural resource.

3. SOIL EROSION:

The applicant proposes to access the site using an existing woods road that connects to Newtown Road. Wetlands will be crossed using construction mats and geotextile fabric overlain by rocks/gravel, or other temporary crossing method designed to prevent rutting in the wetlands. Erosion control devices will be installed in accordance with the Department's "Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices," dated 2003. Following the grading and planting work, the access road will be restored to pre-construction conditions and permanently stabilized.

In the wetland enhancement/restoration and creation areas, the applicant proposes to install sediment barriers to act as check dams and downgradient from topsoil stockpiles, and mulch and seed exposed soils in accordance with accepted erosion control practices. In-stream restoration is proposed to be done during the July 15th to October 1 low-flow work window to minimize sedimentation.

The proposed project was reviewed by the Bureau of Land and Water Quality's Division of Environmental Assessment (DEA). DEA stated that "Overburden in the area is generally marine silt and clay consistent with wet meadow environments. . .Placement of rocks in the stream to create riffle area should probably occur late in the alteration of the site in order to reduce the risk of accumulation of sediment in the constructed riffles." The applicant responded that specifications in the bid documents will advise the contractor of the preferred construction sequence for site access and on-site work. A specific note will be included in the plan set directing the contractor to add the stream rocks later in the sequence only after substantive earthwork on the site is complete and stable.

The Department finds that the activity will not cause unreasonable erosion of soil or sediment nor unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

4. HABITAT CONSIDERATIONS:

The Maine Department of Inland Fisheries and Wildlife reviewed the proposed project and expressed no concerns. There are no Essential or Significant Wildlife Habitats at the project site. The proposed project is anticipated to improve the habitat values of the wetland, stream and upland areas as described in Finding 6.

The Department finds that the activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life.

5. WATER QUALITY CONSIDERATIONS:

The Department does not anticipate that the proposed project will violate any state water quality law, including those governing the classification of the State's waters.

6. WETLANDS AND WATERBODIES PROTECTION RULES:

The applicant proposes to alter approximately 2,425 linear feet of Bush Brook by planting dense shrubs along the riparian floodplain to provide shade, filtration of runoff, and riparian habitat. Six discrete sections of the stream will be altered through the installation of a rocky substrate to provide attachment sites for microinvertebrates. Three- to six-inch diameter river rock or clean cobble will be installed in the channel across its entire width in 15-foot long sections. The rock will be placed to mimic naturally-occurring cobble bottom to an average depth of six to eight inches, with channels of less than three inches within the rock to allow flow and fish passage during low-flow periods.

The Department's Wetlands and Waterbodies Protection Rules, Chapter 310, require that the applicant meet the following standards:

A. Avoidance. No activity may be permitted if there is a practicable alternative to the project that would be less damaging to the environment. Each application for a stream alteration permit must provide an analysis of alternatives in order to demonstrate that a practicable alternative does not exist. The applicant submitted an alternatives analysis for the proposed project completed by HNTB and dated June 2011. Prior to choosing the York Farm site for compensation, the applicant undertook a number of measures to correct the problems at the New Dam Road site that did not meet with success. The applicant also considered use of the In-Lieu Fee program, but determined that the calculated fee for compensation was cost-prohibitive. Finally, the applicant considered other potential properties in York County. Based on strong indications that wetland restoration would be successful and the landowner's conservation objectives, the York Site was chosen as the preferred alternative.

B. Minimal Alteration. The amount of waterbody to be altered must be kept to the minimum amount necessary for meeting the overall purpose of the project. The applicant is not proposing to change the course or location of Bush Brook. The in-stream work described above is designed to enhance the functionality of the stream by creating riffles and pools within the channel to create refuge areas for aquatic species. Shrubs will be densely planted along the riparian floodplain to mimic a natural shrubby riparian zone with variable-sized shrubs and trees to improve water quality of the stream and to enhance the terrestrial habitat along the stream bank.

C. Compensation. In accordance with Chapter 310 Section 5(C)(1), compensation is not required for the proposed project. The Department determined that the proposed wetland and stream alteration will not cause wetland or stream functions to be lost or degraded as a result of the project.

The applicant has purchased a protective easement from Miles York, the owner of the land on which the compensation site is located. The Phase 1 easement area contains approximately 27.7 acres and the Phase 2 area is an additional two acres. The Easement Areas will remain undeveloped in perpetuity with the exception of the proposed wetland compensation improvements and reserved access rights in designated areas expressly granted to the landowner, Miles York. The applicant submitted draft covenants and restrictions for the Easement Areas. Prior to the start of construction, the applicant must submit signed and recorded covenant documents to the Bureau of Land and Water Quality.

The Easement Areas may be conveyed to a third party in the future. The applicant must obtain Department approval prior to any conveyance of the Easement Areas to a third party.

The Department finds that the applicant has avoided and minimized waterbody impacts to the greatest extent practicable, and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project.

7. OTHER CONSIDERATIONS:

The Department did not identify any other issues involving existing scenic, aesthetic, or navigational uses, soil erosion, habitat or fisheries, the natural transfer of soil, natural flow of water, water quality, or flooding.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act:

A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.

B. The proposed activity will not cause unreasonable erosion of soil or sediment.

C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life provided recorded covenant documents for the Easement Areas are submitted and Department approval is obtained prior to any subsequent conveyance of the Easement Areas as described in Finding 6.

E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.

F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.

G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.

H. The proposed activity is not on or adjacent to a sand dune.

I. The proposed activity is not on an outstanding river segment as noted in Title 38 M.R.S.A. Section 480-P.

THEREFORE, the Department APPROVES the above noted application of the MAINE TURNPIKE AUTHORITY to utilize the York Farm site as compensation for wetland impacts associated with the modernization and widening project as described in Finding 1, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations:

1. Standard Conditions of Approval, a copy attached.

2. The applicant shall take all necessary measures to ensure that its activities or those of its agents do not result in measurable erosion of soil on the site during the construction of the project covered by this approval.

3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

4. Prior to the start of construction, the applicant shall submit signed and recorded covenant documents for the Easement Areas to the Bureau of Land and Water Quality.

5. The Easement Areas shall not be subsequently conveyed to a third party without prior Department approval.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES…

mr/l19918gn/ats#73590