

APPENDIX D

**Wetlands & Natural Resources Report
By Normandeau Associates**

**EASTERN TRAIL
SACO TO OLD ORCHARD PROJECT
PIN (13340.00)**

***WETLANDS AND NATURAL RESOURCES
ASSESSMENT***
SACO AND OLD ORCHARD, MAINE

Prepared for
**DeLuca-Hoffman Associates
778 Main Street, Suite 8
South Portland, ME 04106**

Prepared by
**NORMANDEAU ASSOCIATES, INC.
80 Leighton Road
Falmouth, ME 04105**

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1.0 INTRODUCTION

Normandeau Associates, under contract to DeLuca Hoffman Associates Inc., completed a natural resource review for the proposed Eastern Trail Saco to Old Orchard Project. The Eastern Trail (ET) is part of the East Coast Greenway trail system. Most of the off-road portion of the trail is proposed to be, or is presently, located on the long-abandoned "Eastern Railroad" corridor (the rail corridor) that formerly ran from Boston to Portland. Large portions of this abandoned rail corridor have been used as a route for underground natural gas transmission lines as well as other utilities including the Biddeford and Saco Water Company and Central Maine Power Company. The rail corridor under review is owned by Unitil. A small segment of the proposed trail is owned by Thornton Academy. The project is coordinated under the Local Project Administration of the Maine Department of Transportation (MDOT).

This report is intended to be included as part of a Preliminary Design Report for the Saco to Old Orchard segment of the Eastern Trail Bicycle and Pedestrian facility. The Phase I evaluation includes a review of environmental resources using existing information and natural resource contacts. A Phase I Hazardous Waste Review was also completed by Normandeau and will be reported as a separate document. The Phase II Environmental Evaluation includes a delineation of wetlands and vernal pool survey.

The project corridor extends from the Thornton Academy campus in Saco to Milliken Mills Road in Old Orchard. The total distance is 4.58 miles, which, for the purposes of this report, is broken up into four segments, Thornton Academy to I-195, I-195 to U.S. Route 1, U.S. Route 1 to Cascade Road/U.S. Route 98 and Cascade Road to Milliken Mills Road (Figure 1, Appendix A).

2.0 PHASE I EXISTING INFORMATION

Normandeau contacted the Maine Department of Inland Fisheries and Wildlife (MDIFW) for a review of their database for significant wildlife habitat and rare, threatened and endangered species. The Department of Environmental Protection's (DEP) on-line mapping of significant wildlife habitats was checked for sightings within the project area. The U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, Maine Department of Marine Resources and Maine Natural Areas Program (MNAP) were contacted for a review of their databases relative to rare, threatened and endangered wildlife and plant species.

Information regarding documented historic and archeological resources in the project corridor was obtained by consulting with the historic preservation office of each of the five Indian tribes in Maine. Consultation with the Maine Historic Preservation Commission is being completed by the Maine Department of Transportation (MDOT). The Bureau of Parks and Recreation was also contacted for the purpose of identifying properties that may be protected under Section 4(f) of the Department of Transportation Act of 1966. Copies of agency responses received as of the date of this report are provided in Appendix B.

2.1 NATURAL RESOURCES

A review of the DEP on-line mapping found that there are no mapped shorebird roosting or feeding areas within or adjacent to the project corridor. Similarly, a review of Inland waterfowl and wading bird habitat mapping prepared by DEP (July 29, 2009) did not identify any protected resources within the project corridor.

The MDIFW database review found no known threatened or endangered fish species or habitat in the vicinity of the proposed project. However, Goosefare Brook, Mill Brook, and associated tributaries of both brooks, support populations of wild brook trout. MDIFW Region A Fisheries requests a non-disturbance policy within 100 feet of all streams crossed by the trail with the exception of the minimum needed for construction and maintenance. The policy further requests that buffers should be measured from the upland-wetland edge of the stream-associated wetlands, and if the natural vegetation has been previously altered, then restoration maybe warranted. Stream crossings are also requested to include provisions for adequate fish passage, and any in-stream work needs to be done between the first of July and the first of October. The project design should also minimize the number of stream crossings.

2.2 HISTORIC RESOURCES AND SECTION 4(F) PROPERTIES

The Penobscot Indian Nation response indicated that the project “appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966 and subsequent updates”. No responses were received from the other tribes. In addition, Tom Dinsmore of Maine Bureau of Parks and Lands reviewed the Bureau’s files and found no Section 4(f) public lands within the project corridor (Tim Dinsmore, personal communication, 6-23-09).

2.3 RARE, THREATENED AND ENDANGERED SPECIES

The USFWS database review found that “no federally threatened or endangered species under the jurisdiction of the Service are known to occur in the project area”. Occasional, transient bald eagles (*Haliaeetus leucocephalus*) were noted as potentially occurring in the area. However, no known bald eagle nests occur near the project area.

The Maine Natural Areas Program (NAP) completed a review of the Program’s Biological and Conservation Data System files for botanical features. The review “found no rare botanical features documented within the specific project area”. This lack of data may indicate a limited or nonexistent data set from the site, rather than confirming the absence of rare botanical features. NAP recommended a site inventory by a qualified field biologist, which was completed by Normandeau Associates and summarized in Section 3.4.

A consultation response from the National Marine Fisheries Service indicated that they completed a review of their database and found no endangered fisheries habitat in the project area (M. Scott, personal communication, 8-4-09).

3.0 PHASE II- ENVIRONMENTAL EVALUATION

The rail corridor was first constructed in the early 1800's. The gas transmission line was also installed within the corridor in the 1800's and was originally buried up to 3 feet below the ground surface but today can be within 12 inches of the ground surface. The corridor was abandoned and the rail lines and ballast removed at a later date. As a result of the removal of ballast material and minimal effort to maintain culverts and ditches, the corridor now has sections that are barely passable due to ponded water. The sections where drainage is a major deterrent to foot passage are from the active line (at Thornton Academy) north to I-195, as well as a segment within the Route 1 to Cascade Road segment. In both instances, the rail corridor intercepts water flow from bordering wetlands.

Figures of the project corridor are provided in Appendix A. Copies of agency responses are provided in Appendix B. Tables summarizing the results of the vernal pool survey and wetland delineation effort are provided in Appendix C. Photographs of representative wetlands, seasonal pools, and watercourses are provided in Appendix D. Copies of data plots are provided in Appendix E.

3.1 AREA OF REVIEW

The review of the rail corridor right-of-way (ROW) for natural resources generally assumed a width of 80 feet, based on either a fence line, where visible, or an estimated 40 feet either side of an assumed centerline of the current rail corridor. In addition, streams within 75 feet of the centerline were delineated. The following segments had sections located outside the old rail corridor, requiring a different review area.

Clark Street to I-195

The project corridor followed the western property boundary of Thornton Academy (Academy) north to the rail corridor. The review then followed the northern Academy boundary for approximately 450 feet at which point the active rail line heads north to the General Dynamics site while the Eastern rail corridor continues east. The project corridor entered the Eastern rail corridor approximately 100 feet east of the active rail line junction. The review on Academy property extended out 80 feet from the approximate property line (which was not visible in the field) and estimated using a GPS to locate the approximate boundary.

I-195

The area of review along the south side of I-195 extended 40 feet out from either side of the existing highway ROW fence extending from the abandoned rail corridor east to U.S. Route 1. Along the north side of I-195, MDOT owns a parcel of land, which borders the I-195 westbound ramp. The review included the MDOT property from the rail corridor east to a point where adjacent house lots abut the I-195 ROW. The reviewed area also included areas to the east within the I-195 ROW to a point where a second MDOT parcel borders the ROW. In all instances, the review extended from the ROW fence out 80 feet. In general, the limits of the natural resource review coincided with the trail route alignment outlined in the original ET Management District RFP.

3.2 NATURAL RESOURCES EVALUATED

3.2.1 Vernal Pool Survey

Vernal pools are dynamic habitats that vary in water level, vegetative cover, and other physical characteristics during the course of a year, as well as from year to year. In addition, the breeding activity of amphibians, particularly the initiation of breeding, is dependent upon seasonal environmental parameters such as temperature and precipitation. Due to this variability, the presence and number of egg masses may differ between breeding seasons and during the course of a given breeding season. Moreover, many of the amphibian species that utilize these pools, breed at different times during the spring, and differ in their life history cycles/duration. Therefore, the Maine Department of Inland Fisheries and Wildlife (MDIFW), is generally recommending that two surveys be conducted, to ensure data collection during or immediately after peak breeding activity for the indicator vernal pool amphibian species common to Maine.

Methodology

Based on observations made of the amphibian breeding activity within the study area, the survey effort was conducted at the appropriate time for characterizing vernal pools. A first review was conducted on April 17 and a second on April 29. The survey encompassed the project area from Clark Street in Saco to Cascade Road in Old Orchard. Results of this survey effort are discussed below. The Cascade Road to Milliken Mills Road segment was added to the project scope after the vernal pool survey had been completed. However, a preliminary assessment of this segment on June 9 did not identify any potential vernal pools.

At locations where one or more of the indicator species were observed in the pool, further information concerning the physical and biological aspects of the resource (e.g., size, hydrology, vegetation, etc.) was collected. Photographs were also taken of the pools and of the indicator species observed. Representative photographs are provided in Appendix D of this document. The boundaries of the pools were identified based on observed evidence of the high water marks, and were recorded using a Trimble hand-held GPS receiver with an estimated accuracy of ± 2 meters.

Vernal Pool Survey Findings

Ten seasonal pools were observed within the project corridor, and all were documented as providing breeding habitat for vernal pool species. Table 1 provides a summary of the pools including species identified within each pool; the number of egg masses at the time of the two surveys; the condition of the pool regarding its origin (i.e., whether it appeared to be natural or created by human activities); and other relevant physical characteristics. All the pools that occur within the existing trail corridor are either in the existing dirt travel way or adjacent ditches. The dirt travel way is heavily used by ATV's, which disturb the pools and raise sediment levels in the water column. Existing ditches have not been maintained allowing growth of hydrophytic vegetation, and areas of ponded water.

A majority of the pools observed on the site have formed as a result of water flowing onto the trail from adjacent natural wetlands. None of the seasonal pools observed would be considered natural, as they have all formed as a result of the construction of the rail corridor or activity within the rail corridor. In one instance, Seasonal Pool 1 occurs adjacent to the existing travel way within a natural shrub wetland (ID 6), which has formed at the southern end of the project corridor at the intersection of the abandoned corridor with the active rail line. Based on the location between the two rail lines, it

was assumed that Pool 1 would not be considered natural as it formed as a result of the construction of the lines. Confirmation of this assessment by DEP is recommended.

Wood frog egg masses were observed within three of the pools (1, 5, and 9). Salamander egg masses were observed in all the pools with the exception of Pool 9. Three pools (1,3,4,10) contain either a permanent inlet or outlet. The remaining pools either are isolated or have an ephemeral outlet.

3.2.2 Wetland Resources

Methodology

Wetlands were delineated within the project corridor in June 2009 in accordance with the U.S. Army Corps of Engineers Manual (1987). Identification of hydric soils was based on the criteria identified in the document *Field Indicators for Identifying Hydric Soils in New England* (New England Hydric Soils Technical Committee 2004). The delineation of the boundary was complicated by a number of factors including past disturbance from vehicle activity and corridor maintenance, and alteration of hydrology either by ditching or interception of surface flows onto the abandoned rail corridor.

Relevant data regarding soils, vegetation, and hydrology were collected from paired plots and used to document the boundary (Attachment D). The boundary was delineated in the field with consecutively numbered surveyors flagging (i.e., glo-pink "wetland delineation" flagging), and each flag was located using a Trimble® GPS unit. The data was post processed to improve accuracy and the electronic file was sent to Dow and Coulombe Surveyors for insertion onto project base mapping. While surveying the project corridor, the surveyors picked up random wetland flags to enhance overall accuracy. The delineation results are summarized in Table 2.

Site Characteristics

Clark Street to I-195

The first section of the project corridor is within the developed portion of the Academy site. The proposed trail will be located adjacent to the access road from Clark Street, parking lots, and ball fields. The northern portion of the site is generally characterized as a mixed hardwood forest. The dominant species include beech (*Fagus grandifolia*), Eastern hemlock (*Tsuga canadensis*), red oak (*Quercus rubra*), green ash (*Fraxinus pennsylvanica*), and red maple (*Acer rubrum*). The rail corridor, which gently slopes towards the north and I-195, is bordered by mixed forest. Initially the corridor is at the same grade as bordering lands, but a cut was required to maintain gradient, resulting in bank heights gradually increasing to a height of 8 to 10 feet above the corridor at the intersection with I-195. The rail corridor has been removed at the I-195 crossing and a 36 inch culvert carries flow north to the Moody Street section of the rail corridor. Flowage to the 36 inch culvert and beyond to Moody Street is identified as a blue line on the USGS topographic map indicating a perennial stream flow. This stream flow passes through an existing box culvert within the rail corridor midway between I-195 and Moody Street.

I-195

The rail corridor along the south side of I-195 is wooded to the south of the ROW fence. Vegetation in the uplands includes white pine, red oak, beech, and red maple. The vegetation has been disturbed within the ROW resulting in a mix of shrubs and saplings in the uplands where the ROW is not mowed grass. The dominant species in the upland include paper birch, red maple, white pine and

sumac. The north side of I-195 is mixed hardwood forest on the north side of the ROW fence and a mix of shrub and herbaceous species within the maintained ROW. Species are similar to those seen on the south side of the highway.

I-195 to U.S. Route 1

The rail corridor from I-195 to Route 1 passes through a mix of forest and farmland with a few residences in the vicinity of Moody Street. East of Moody Street the rail corridor crosses Goosefare Brook and one of its tributaries, and is elevated on fill, 10 to 15 feet above the ravines associated with these streams. ATV use of this segment of the corridor is less intensive compared to the segments east of Route 1. Access to Goosefare Brook has been acquired by a local land trust.

U.S. Route 1 to Cascade Road

The rail corridor crosses six streams and water courses within the first 1/2 mile east of Route 1. At the crossings of the streams the corridor is elevated 15 to 20 feet on fill. The remainder of the corridor is generally at the same grade as bordering lands. The current corridor is used extensively by ATV's, which have rutted the trail. Scattered residences are located along the south side of the corridor and the Mill Brook Business Park and undeveloped land are located to the north. The lands bordering the corridor are forested except where residences occur.

Cascade Road to Milliken Mills Road

The first ¼ mile of the corridor is elevated on fill in order to cross Mill Brook. The culvert crossing of Mill Brook was destroyed during a flood event and currently ATV traffic crosses through the brook. The remainder of the corridor to Milliken Mills Road is generally at the same grade as the bordering lands. A number of residences are located along the north side of the corridor.

Wetland and Watercourse Characteristics

Clark Street to I-195

Wetlands

Wetlands bordering the Thornton Academy parking lot and playing fields have been degraded by past construction activities. The dominant vegetation within these wetlands include honeysuckle (*Lonicera* spp), silky dogwood (*Cornus amomum*), and rose (*Rosa* spp) within the shrub layer. Dominant species observed within the herbaceous layer include jewelweed (*Impatiens capensis*) and goldenrod (*Solidago* spp). A non-maintained ditch, dominated by shrub species, carries flow from the adjacent uplands towards Clark Street. An apparent intermittent stream bordered by shrubs crosses the western corner of the property, adjacent to a playing field. The source of flow appears to be a culvert from an adjacent property. The shrub wetlands would be classified by the US Fish and Wildlife service as Palustrine Scrub-Shrub broad-leaved deciduous (Cowardin et al. 1979) (PSS1).

Several forested wetlands were delineated within the wooded portion of the property. Dominant species within the forested wetlands include red maple American elm (*Ulmus americana*), Eastern hemlock, shallow rooted white pine (*Pinus strobus*), and gray birch (*Betula populifolia*) in the overstory with common winterberry holly (*Ilex verticillata*), high bush blueberry (*Vaccinium corybosum*), witch hazel (*Hamamelis virginiana*) and maleberry (*Lyonia ligustrina*) in the shrub layer. Common herbaceous species include cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), sedge species (*Carex* spp.), spinulose woodfern (*Dryopteris spinulosa*), and

poison ivy (*Toxicodendron radicans*). These wetlands would be classified as Palustrine forested broad-leaved deciduous and needle-leaved evergreen (PFO1/4).

Wetland 6R is a forested wetland to the south of the rail corridor, which is linked by ephemeral flow across the rail corridor with a shrub wetland (ID 6L) containing vernal pool 1. Based on the ephemeral link between the two areas, these two areas should be considered two separate wetlands.

East of the junction with the active rail line to I-195 the rail corridor has high banks as a result of blasting to maintain grade. As a result, this section of corridor acts as a collector of surface water from adjacent wetlands and uplands, connecting with a downstream tributary of Goosefare Brook east of I-195. The corridor is currently functioning as a wetland, with herbaceous species dominant in saturated soils. Dominant species include fringed sedge (*Carex crinita*), jewelweed (*Impatiens capensis*), sensitive fern and *Agrostis* species.

The soils have hydric morphology including low chroma matrix with redoximorphic features. Based on soil observations, wetland drainage patterns, and on-site observations, the soils are generally saturated to the surface for some portion of the year. The US Fish and Wildlife Service would classify the water regime¹ as “saturated in which the “substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present”.

Watercourses

Watercourses identified within this segment include an intermittent stream on the Academy property and an intermittent watercourse following the rail corridor. The intermittent stream on the Academy property appears to originate from a culvert on an adjacent property. It traverses a corner of the property.

The rail corridor has intersected surface flow from bordering wetlands, resulting in ponded conditions from just north of the junction of the active rail line to the culvert crossing of I-195. As there is no well defined channel, aquatic vegetation, or blue line on the USGS topographic map, this area would not be considered a DEP stream, although definite flow is apparent after heavy rains. Confirmation of this assessment by DEP is recommended

I-195

Wetlands

Mowing within the I-195 ROW has been limited to the side slopes bordering the roadway, allowing shrubs and trees to develop along the ROW fence, providing a visual buffer for residences and commercial facilities bordering the road. On the south side of I-195, a large shrub/forested wetland is located between the Hannaford Store and the rail corridor. This wetland extends into the ROW.

The review of the northern side of I-195 included the eastern half of the ROW, in which a mix of shrub and emergent wetlands were delineated. The wetlands within the ROW extend onto adjacent parcels with a mix of shrub swamp and forested wetland. A narrow forested wetland swale was delineated south of the rail corridor on an adjacent MDOT parcel. An ATV trail crosses the wetland.

The two major wetland types delineated within the I-195 ROW were emergent marsh and shrub wetland. Dominant wetland species within the emergent wetlands include cattail (*Typha latifolia*) and

¹ Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Dept. of the Interior, Fish and Wildlife Service, OBS, Washington, D.C.

reed canary grass (*Phalaris arundinaceae*). Dominant shrub/sapling species included common winterberry holly, red maple, gray birch, and meadow sweet (*Spirea latifolia*). Dominant species within the forested wetlands associated with this segment include red maple, gray birch, witch hazel and sensitive fern. Areas dominated by emergent vegetation are classified as Palustrine Emergent Marsh, with persistent vegetation (PEM1).

Soils within the wetlands have hydric morphology including histic epipedons, low chroma surface horizons and subsurface horizons and redoximorphic features. The water regime would be classified as saturated except in several areas where ponding occurs, in which case the water regime is classified as semi-permanently flooded "surface water persists throughout the growing season in most years¹".

Watercourses

According to the USGS topographic quad for the area, a tributary (ID 8) to Goosefare Brook has been ditched along the south side of I-195 and enters the project corridor just above the culvert crossing of I-195. This intermittent stream flows into the watercourse created within the rail corridor.

On the north side of I-195, the flow from the culvert linking the north and south segments of the rail corridor appears to flow at least six months a year, based on flow from the culvert and a ROW ditch along the north side of I-195. Further discussion of this stream (ID15) is included in the next section.

An intermittent stream (ID 11) was delineated within the eastern most MDOT parcel located on Moody Street. This stream originates within a shrub swamp (Figure 5) and is ditched at a culvert crossing of Moody Street.

I-195 to Moody Street

Wetlands

Narrow emergent wetland pockets occur within the existing rail corridor, which are associated with a ditched stream (ID 15) flowing along the west side of the corridor. Dominant species include (*Glyceria canadensis*), sedge species (*Carex* spp.), sensitive fern, (*Carex crinita*), buttercup species (*Ranunculus* spp.), and jewelweed. The soils within the rail corridor have been disturbed by past construction activity. Soil observations found hydric morphology including low chroma matrix and redoximorphic features. The water regime is saturated.

Watercourses

The tributary of Goosefare Brook (Old Orchard USGS 7.5 minute topographic quadrangle), which originated on the south side (ID 8) of I-195, has been ditched along the western side (ID 15) of the rail corridor, from I-195 to a culvert crossing. The stream exits the east side of the ROW. A ditch along the northern end of this segment connects via a culvert to a ditch north of Moody Street.

Moody Street to U.S.Route 1

Wetlands

The rail corridor crosses two ravines associated with Goosefare Brook (ID 20), and one of its tributaries (ID 19). Narrow shrub wetlands border these streams, with the following dominant species: honeysuckle, speckled alder (*Alnus incana*), and jewelweed. At the Goosefare Brook crossing there is a shrub swamp downstream of the corridor, and a broad emergent wetland located upstream of the corridor, formed as a result of a constricted culvert. The wetlands are within a mapped 100-year floodplain of Goosefare Brook (Office of Maine GIS, York County FIRM mapping). The soils within

the wetlands have hydric morphology including a dark surface horizon and low chroma matrix in the subsurface horizon with redox features. The soils within the wetlands range from saturated to permanently flooded, in which "water covers the land surface throughout the year in all years¹".

Watercourses

North of Moody Street, a ditch extends along the west bank of the corridor before discharging flow into a tributary of Goosefare Brook. The tributary (ID 19) of Goosefare Brook appears to flow 6 months a year and have well defined channels. The corridor crosses the main stem of Goosefare Brook (ID 20) (a perennial stream) just south of Route 1. The Federal Emergency Management Agency (FEMA) has mapped a 100-year floodplain associated with this watercourse.

U.S.Route 1 to Cascade Road

Wetlands

Six stream corridors are crossed within the first 1/2 mile of this segment. The streams are bordered by narrow shrub wetlands with pockets of emergent wetland. Common shrub species include honeysuckle and alder in the shrub layer and sensitive fern, sedges, and meadow sweet (*Spirea latifolia*) in the herbaceous layer. The wetland soils within the trail have a dark surface horizon, low chroma subsurface horizon with redox features starting at 4 inches. The water regime ranges from saturated to intermittently flooded" in which the substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity¹".

Common wetland types encountered within this segment include shrub and forested wetlands, which have been bisected by the corridor; areas of ponding created by ATV traffic and isolated pockets of emergent and/or shrub wetland within the trail

The largest wetland crossing by the corridor occurs at Wetland ID 29, where there is an emergent wetland, with an estimated 20,000 SF or more of open water, located on the north side of the trail and forested wetland on the south. During high water periods the trail floods, forming an emergent wetland within the trail. Ponded areas have formed within the trail as a result of ATV activity, including seasonal pool (ID 4). Dominant species within the adjacent wetlands include common cattail (*Typha latifolia*), meadow sweet and common winterberry holly within the emergent/shrub wetland.

Wetland 39 is a typical vegetated ditch bordering the trail dominated by a mix of shrubs and emergent species. Dominant species include speckled alder and willow (*Salix* spp.) in the shrub layer with sensitive fern and sedges in the herbaceous layer.

The soils within the wetlands have hydric morphology. The water regime ranges from saturated to semi-permanently flooded.

Watercourses

At the southern end of this segment, six streams are crossed by the corridor within 1/2 mile of Route 1 and are tributaries of Innis Brook. Three of the streams are perennial (ID 23, 25, and 27) and three intermittent (ID 22, 24, and 26). All have well defined, scoured channels and appear to flow greater than 6 months per year. At the northern end of this segment, a tributary (ID 48) of Mill Brook is crossed by the trail just before the intersection with Cascade Road. This stream is perennial, with a well defined channel and evidence of scouring.

A number of vegetated ditches occur along this segment. Ditches ID 40 and ID 44 had steady flow during the field visits, apparently from adjacent wetlands and uplands and ultimately flow into the tributary of Mill Brook. These ditches do not appear to meet the criteria of a stream as the channels are not scoured and flow is anticipated to be less than 6 months per year.

Cascade Road to Milliken Mills Road

Wetlands

The confluence of the Mill Brook tributary (ID 49) and Mill Brook (ID 50) occurs to the north of Cascade Road and west of the project corridor. A shrub wetland (ID 50) bordering the brooks was delineated along the toe of slope of the west side of the trail. A narrow shrub swale borders a second tributary (ID 51) to Mill Brook on the east side of the trail. The dominant species within these wetlands include yellow birch (*Betula alleghaniensis*), balsam fir (*Abies balsamea*) red maple, and alder in the shrub layer with jewelweed, sensitive fern, fringed sedge (*Carex crinita*), and meadow sweet (*Spirea latifolia*) in the herbaceous layer. The classification of these wetlands would be Palustrine Scrub/Shrub broad-leaved deciduous (PSS1). The shrub wetlands bordering Mill Brook are within a mapped 100-year floodplain (Office of Maine GIS, York County FIRM mapping).

A vegetated ditch was delineated at the eastern end of this segment. The dominant species within this wetland area include meadow sweet, sensitive fern and goldenrod species (*Solidago* spp.). This wetland would be classified as Palustrine Emergent persistent (PEM1)

Watercourses

Two Mill Brook tributaries (ID 49, 51) and Mill Brook (ID 50) occur within this segment. The Mill Brook crossing was formerly crossed by a culvert that was destroyed during a past flood event. Currently, there is a stream bed ATV crossing of the brook. A perennial brook, which crosses Cascade Road via a culvert, joins Mill Brook on the west side of the rail corridor. A perennial stream (ID 51) flows parallel to the east side of the corridor, entering Mill Brook downstream of the corridor crossing of Mill Brook. A 100-year floodplain has been mapped by FEMA on the north side of the corridor and at the trail crossing of Mill Brook.

3.3 BOTANICAL REVIEW

The Maine Natural Areas Program (MNAP) lists 24 rare plant species and 9 Exemplary Botanical Features (rare plant communities) within a 4-mile radius of the project corridor see Appendix B). Four of the 9 listed plant communities (*Spartina* Saltmarsh, Brackish Tidal Marsh, Tidal Marsh Estuary Ecosystem, and Freshwater Tidal Marsh) are tidally affected and hence do not occur in the project area. Of the remaining 5 plant communities, 3 (Atlantic White Cedar Bog, Pitch Pine Bog, Raised-Level Bog Ecosystem) depend on limited nutrient input and a relatively stable hydroperiod, a combination of factors unlikely to occur in the project area's riverine environment, which is increasingly subject to flashy urban runoff. The Coastal Dune-Marsh Ecosystem is too dependent on active seashore dynamics to occur so far inland.

The ninth and last of the listed plant communities, Hemlock-Hardwood Pocket Swamp, became the object of our search (20 July 2009) in the most wooded portion of the project corridor, between the Rte. I-195 interchange and Thornton Academy. Instead of swamp, the survey found upland forest dominated by American beech (*Fagus grandifolia*), oaks (*Quercus* spp.) and maples (*Acer* spp.), with

wintergreen (*Gaultheria procumbens*) and interrupted fern (*Osmunda claytoniana*) dominants of the herbaceous understory.

The field survey also searched this upland forest for *Sassafras albidum*, *Ilex laevigata*, *Carex vestita* and *C. bullata*, four of the listed plant species with a strong likelihood of occurrence there. None of these four species was found. One species resembling *C. bullata* proved on examination to be the ubiquitous *C. lurida*.

Another 4 of the listed plant species (*Sagittaria rigida*, *Lilaeopsis chinensis*, *Salicornia bigelovii*, and *Agalinis maritima*) are more or less dependent on saline, tidal wetlands, which do not occur in the project corridor. Although the southwestern half of the project lies within the metamorphosed calcareous siltstone and shale of the Eliot Formation (Hussy 2003), the widespread overburden of marine sands (Retelle 1999) precludes any marked advantage for calciphiles on the MNAP list (notably *Carex sterilis*) anywhere in the project corridor.

Since most of the listed plant species are hydrophytes, the field survey took particular note of wetland areas, including the open water near Route 1 and that of Mill Creek. In the genus *Sagittaria*, only *S. latifolia* was found. The railroad bed and periodically de-vegetated verge occupy about three quarters of the 80-foot-wide ROW. Consequently, the weedy ruderal species that have evolved with agriculture dominate much of the upland bordering adjacent wetland. The disturbance effect of ROW maintenance activities extends well beyond the disturbance zone itself, in the form of exotic invasive plant species, e.g. Oriental bittersweet (*Celastrus orbiculatus*) and honeysuckle (*Lonicera* spp). Native species able to tolerate such competition include predictably the common ones, e.g. poison ivy (*Toxicodendron radicans*) and fringed sedge (*Carex crinita*). Not surprisingly, field checks of project-area wetland yielded no positive findings for listed species.

Relatively few (5) of the listed species are associated primarily with open upland: Creeping spike moss (*Selaginella apoda*), common sandspur (*Cenchrus longispinus*), beach plum (*Prunus maritima*), butterfly weed (*Asclepias tuberosa*) and hollow Joe-pye weed (*Eupatorium fistulosum*). These face disturbance of the same kind inflicted on bordering wetland vegetation – competition with exotic invasive species and disturbance-tolerant natives – in addition to the direct impact of vegetation

3.4 REGULATORY OVERVIEW

Vernal pools

Maine Chapter 335, Significant Wildlife Habitat, defines vernal pools “as a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools do not have a permanent inlet, nor outlet and no viable populations of predatory fish”. The Chapter 335 (MDEP 2009) definition includes terrestrial habitat within a 250-foot radius of a significant vernal pool.

Significant Vernal Pools are determined based on the number and type of pool breeding amphibian egg masses; the presence of fairy shrimp; or use by threatened and endangered species. In addition, significant vernal pool habitat must be natural. Pools located in southern Maine, which dry out after spring filling and before July 15th are not considered significant vernal pool habitat. The presence of the following species would make a pool significant habitat:

Species	Abundance Criteria
Fairy shrimp	Presence in any life stage
Blue spotted salamander	Presence of 10 or more egg masses.
Spotted salamanders	Presence of 20 or more egg masses.
Wood Frogs	Presence of 40 or more egg masses.

Wetlands containing significant vernal pool habitat would be considered wetlands of special significance. The Corps criteria are similar to Chapter 335, except that non-natural (i.e., human created) pools can be regulated as a vernal pool, and their definition does not differentiate highly productive pools from those that are less productive. The Corps requires avoidance and minimization of impacts within 500 feet of a vernal pool under the Maine Programmatic General Permit (PGP). It should also be noted that the US Fish and Wildlife Service often recommends minimization of impacts to uplands within 750 feet of a vernal pool.

State

The Department of Environmental Protection (DEP) has jurisdiction over wetlands and waterbodies under the Natural Resources Protection Act (NRPA, 38 M.R.S.A §480-A to 480-Z). Various wetland characteristics, as well as the areal extent of any impacts, are taken into account in determining the level or "Tier" of permitting required under the NRPA. Projects impacting less than 4,300 sq. ft. of wetland are exempt from the NRPA provided impacts do not occur within a municipal shoreland zone or another protected natural resource and the project complies with the Erosion and Sedimentation Control law. Alterations to wetlands with characteristics exemplifying "freshwater wetlands of special significance" are usually not eligible for the exemption or Tier 1 or Tier 2 permitting and require either a Tier 3 or individual permit.

Wetlands of Special Significance are wetlands that:

- are within 250 feet of a coastal wetland;
- contain one of the critically imperiled (S1) or imperiled (S2) wetland communities as identified by the Maine Department of Conservation Natural Areas Program;
- are within 250 feet of a great pond;
- are located within 25 feet of a stream;
- contain at least 20,000 square feet of aquatic or emergent vegetation or open water;
- contain significant wildlife habitat, including significant vernal pools;
- contain peatland; and/or,
- are within a floodplain.

Federal

Wetlands and watercourses at the site, if determined to be jurisdictional under the provisions of Section 404 of the Clean Water Act, are also regulated by the US Army Corps of Engineers (Corps). Impacts to wetlands resulting from placement of fill are addressed by the Corps with a Programmatic General Permit for the State of Maine. Fill impacts to inland wetlands are broken down into three permit categories based on the following areal thresholds: Category I - less than 4,300 sq. ft (excluding vernal pools); Category II – 4,300 sq. ft. to 3 acres, and Individual Permit- either greater than three acres of impact or conditions of Category II cannot be met. Fill area includes permanent and temporary fill as well as excavation discharges. The Corps has the discretionary authority to

require Category 2 or Individual Permit review. Standard sediment and erosion control measures should be utilized to protect wetlands during construction.

4.0 SUMMARY

Table 1 summarizes the result of the vernal pool survey, which identified 10 seasonal pools. No natural vernal pools were identified and therefore none of the ten pools identified would be considered a significant vernal pool habitat under Chapter 335. Confirmation of the assessment by the DEP is recommended, particularly for Pool 1, which is located at the junction of the active rail line and the project corridor. All ten pools would be considered vernal pools by the Corps. Pool 1 is the only natural, undisturbed pool, while the remaining pools have formed within the active trail, a disturbed habitat with minimal shading.

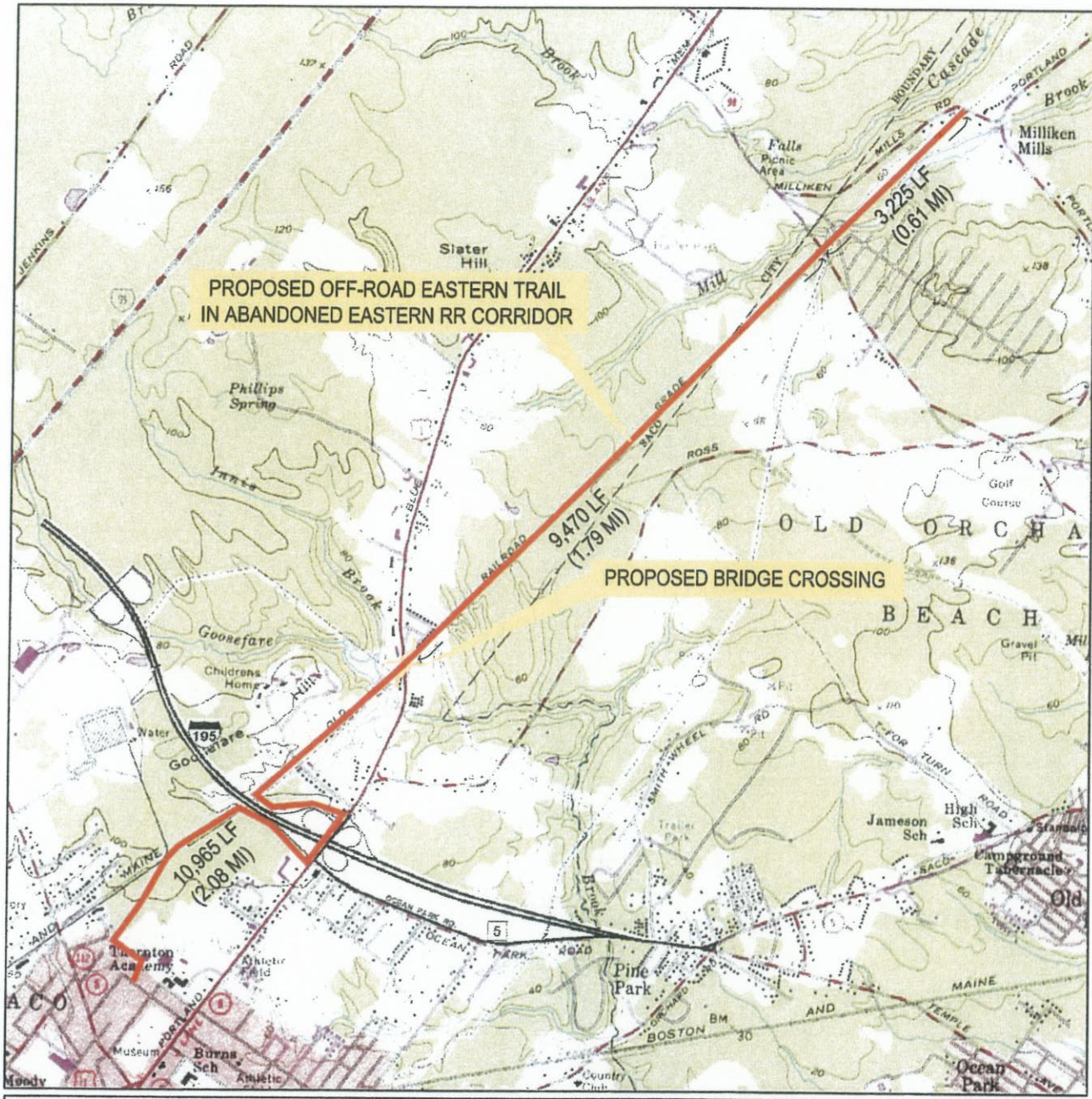
All the wetlands and watercourses within the project corridor are under the jurisdiction of the DEP and Corps. Nineteen wetlands are considered Wetlands of Special Significance (Table 3) due to their relationship to either a stream, 100-year floodplain or emergent marsh (>20,000 SF of aquatic, emergent and/or open water). Goosefare Brook, Mill Brook, and associated tributaries of both brooks support wild brook trout. MDIFW Region A Fisheries requests a non-disturbance policy within 100 feet of all streams crossed by the trail with the exception of the minimum needed for construction and maintenance. At this time only one new stream crossing at Mill Brook is proposed by the project. All other stream crossings will be maintained as existing.

5.0 REFERENCES

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Dept. of the Interior, Fish and Wildlife Service, OBS, Washington, D.C.
- Hussy, Arthur M. II (2003) Bedrock geology of the Old Orchard Beach quadrangle, Maine. Maine Geological Survey (Department of Conservation), Open-File Map 03-96, scale 1:24,000.
- Maine Department of Environmental Protection. 2009. Natural Resources Protection Act, Significant Wildlife Habitat, Chapter 335. Bureau of Land and Water Quality. DEO 0076-C2006. Augusta ME.
- New England Hydric Soils Technical Committee (2004) *Field Indicators for Identifying Hydric Soils in New England*, Version 3. New England Interstate Water Pollution Control Commission, Lowell, MA.
- Retelle, Michael J. (1999) Surficial geologic mapping of Old Orchard Beach quadrangle, Maine. Maine Geological Survey (Department of Conservation), Open-File Map 99-94, scale 1:24,000.
- U.S. Army Corps of Engineers (1987) Corps of Engineers Wetland Delineation Manual. Washington D.C.

APPENDIX A

Figures



USGS LOCATION MAP
Eastern Trail - Milliken Road to Thornton Academy
Old Orchard Beach - Saco, Maine

SOURCE: USGS 7.5 MINUTE OOB & BIDDEFORD QUADRANGLES / MDOT EASTERN TRAIL MAP

DeLuca-Hoffman Associates, Inc.
 778 MAIN STREET, SUITE 8
 SOUTH PORTLAND, ME 04106
 207-776-1121
 www.delucahoffman.com

DRAWN: SEB
 CHECKED: SRB
 DATE: APRIL 2009
 FILENAME: 2869 USGSMAP.DWG
 SCALE: 1" = 2500'

FIGURE
1



0 50 100
ft



Legend

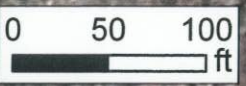
- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale: As Shown
 Project No: 21595
 Filename: WetlandsMap1.mxd
 Drawn By: DLP
 Date Drawn: 8-13-2009

Eastern Trails
Wetlands Mapping
Figure 1

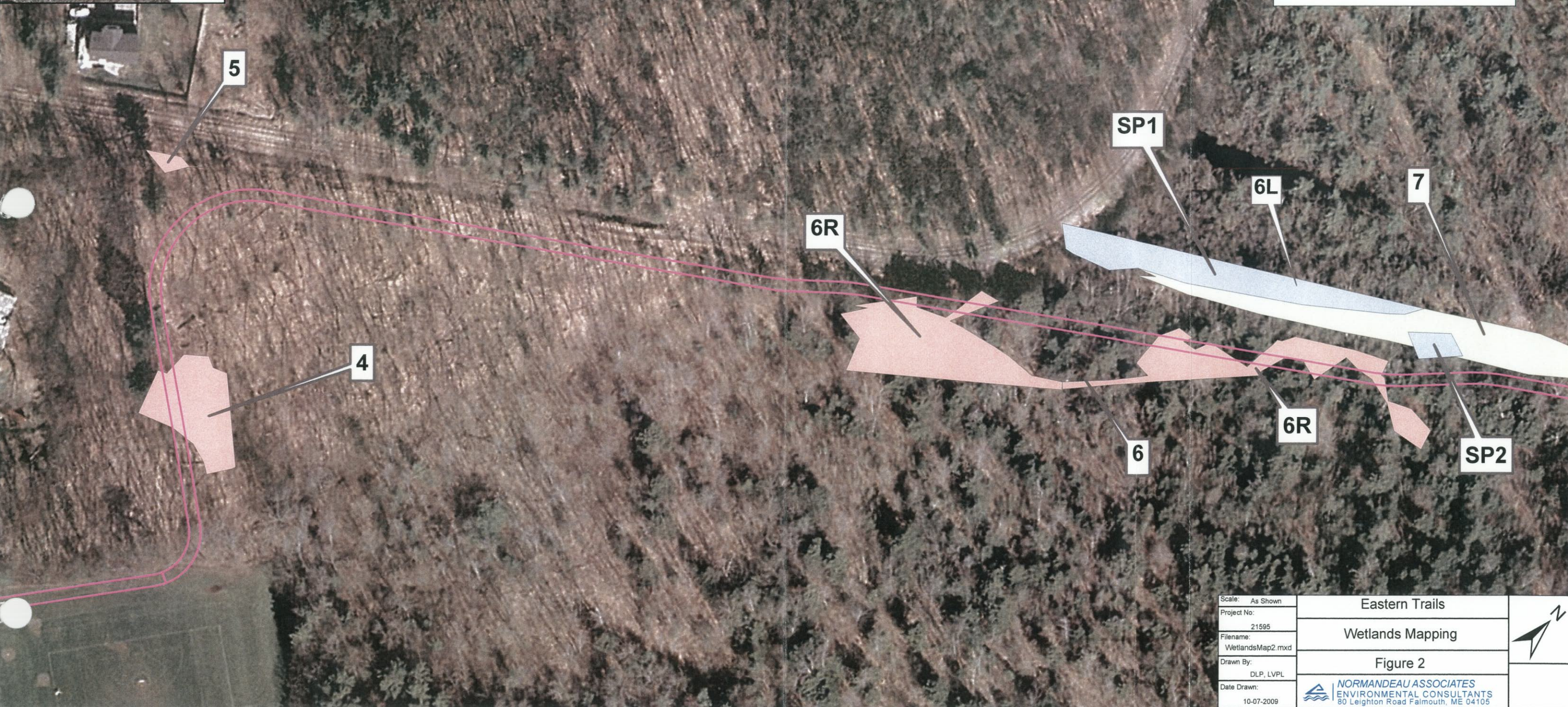
NORMANDEAU ASSOCIATES
 ENVIRONMENTAL CONSULTANTS
 80 Leighton Road Falmouth, ME 04105



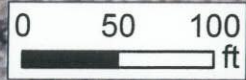


Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch




Scale: As Shown	Eastern Trails		
Project No: 21595	Wetlands Mapping		
Filename: WetlandsMap2.mxd	Figure 2		
Drawn By: DLP, LVPL	 NORMANDEAU ASSOCIATES ENVIRONMENTAL CONSULTANTS 80 Leighton Road Falmouth, ME 04105		
Date Drawn: 10-07-2009			



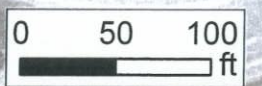
Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale:	As Shown
Project No:	21595
Filename:	WetlandsMap3.mxd
Drawn By:	DLP
Date Drawn:	8-13-2009

Eastern Trails
Wetlands Mapping
Figure 3
 NORMANDEAU ASSOCIATES ENVIRONMENTAL CONSULTANTS 80 Leighton Road Falmouth, ME 04105





Legend

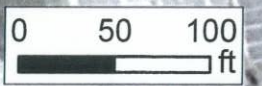
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- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale: As Shown
 Project No: 21595
 Filename: WetlandsMap4.mxd
 Drawn By: DLP
 Date Drawn: 8-13-2009

Eastern Trails
Wetlands Mapping
Figure 4

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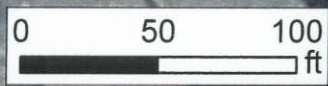
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	VO Line
	Watercourse/Ditch
	Vernal Pool
	Emergent Wetland (PEM)
	Scrub Shrub (PSS1)
	Forested Wetland (PFO1/4)
	Watercourse/Ditch

Scale: As Shown
 Project No: 21595
 Filename: WetlandsMap5.mxd
 Drawn By: DLP
 Date Drawn: 8-13-2009

Eastern Trails
 Wetlands Mapping
 Figure 5

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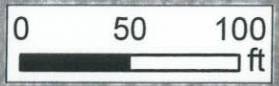




Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale: As Shown	Eastern Trails		
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Date Drawn: 8-13-2009			

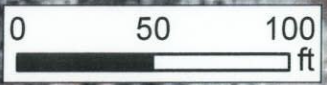


Legend	
	Trail Alignment
	VO Line
	Watercourse/Ditch
	Vernal Pool
	Emergent Wetland (PEM)
	Scrub Shrub (PSS1)
	Forested Wetland (PFO1/4)
	Watercourse/Ditch

Scale:	As Shown
Project No:	21595
Filename:	WetlandsMap7.mxd
Drawn By:	DLP
Date Drawn:	10-26-2009

Eastern Trails	
Wetlands Mapping	
Figure 7	
 80 Leighton Road Falmouth, ME 04105	





32


20L

20R

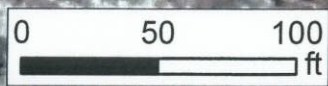
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- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale: As Shown
 Project No: 21595
 Filename: WetlandsMap7a.mxd
 Drawn By: DLP, LVPL
 Date Drawn: 10-26-2009

Eastern Trails	
Wetlands Mapping	
Figure 7a	
 NORMANDEAU ASSOCIATES ENVIRONMENTAL CONSULTANTS 80 Leighton Road Falmouth, ME 04105	





23L

23R

22

21

Legend

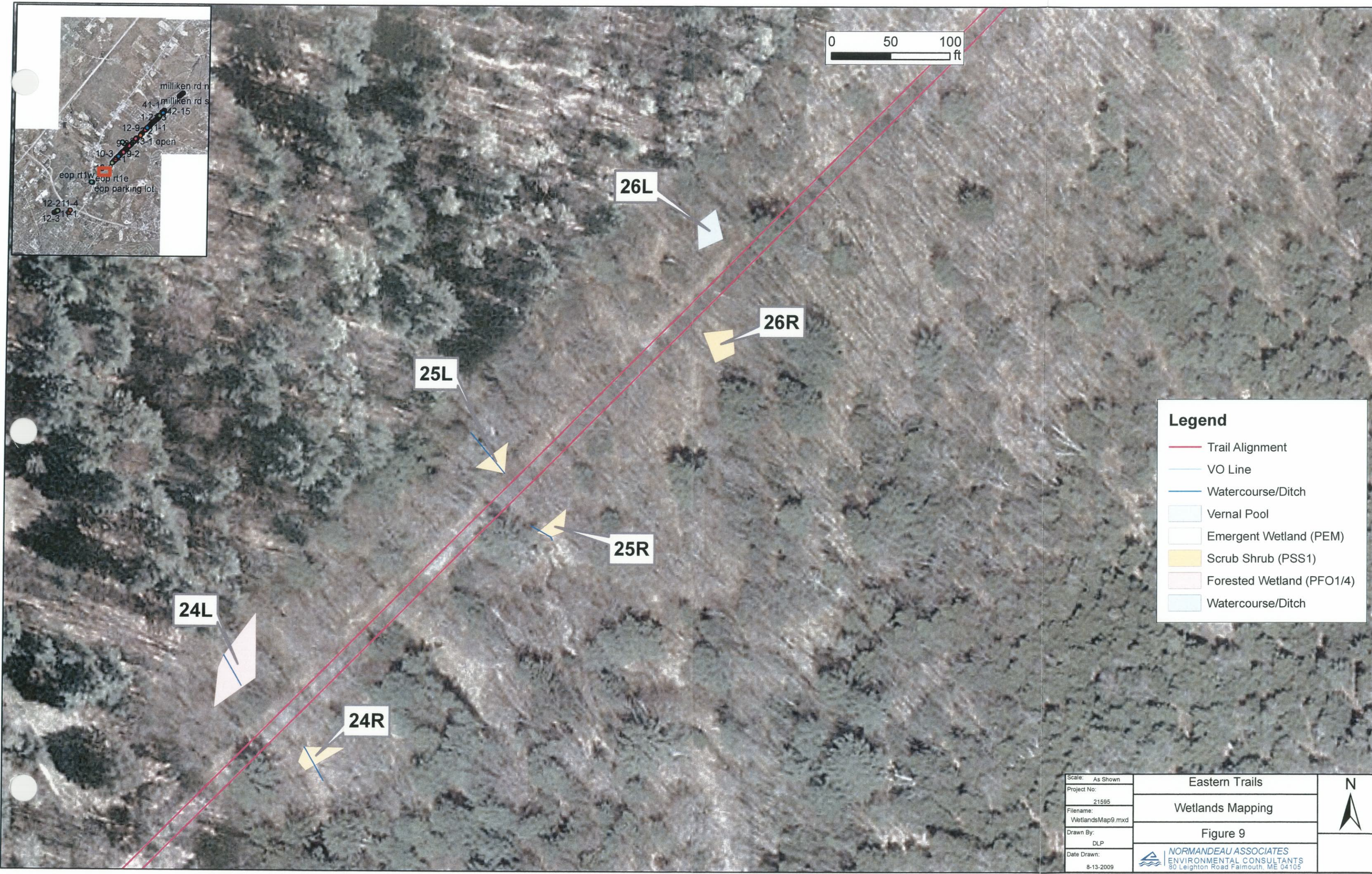
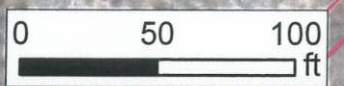
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- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale: As Shown
 Project No: 21595
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 Drawn By: DLP
 Date Drawn: 8-13-2009

Eastern Trails
Wetlands Mapping
Figure 8

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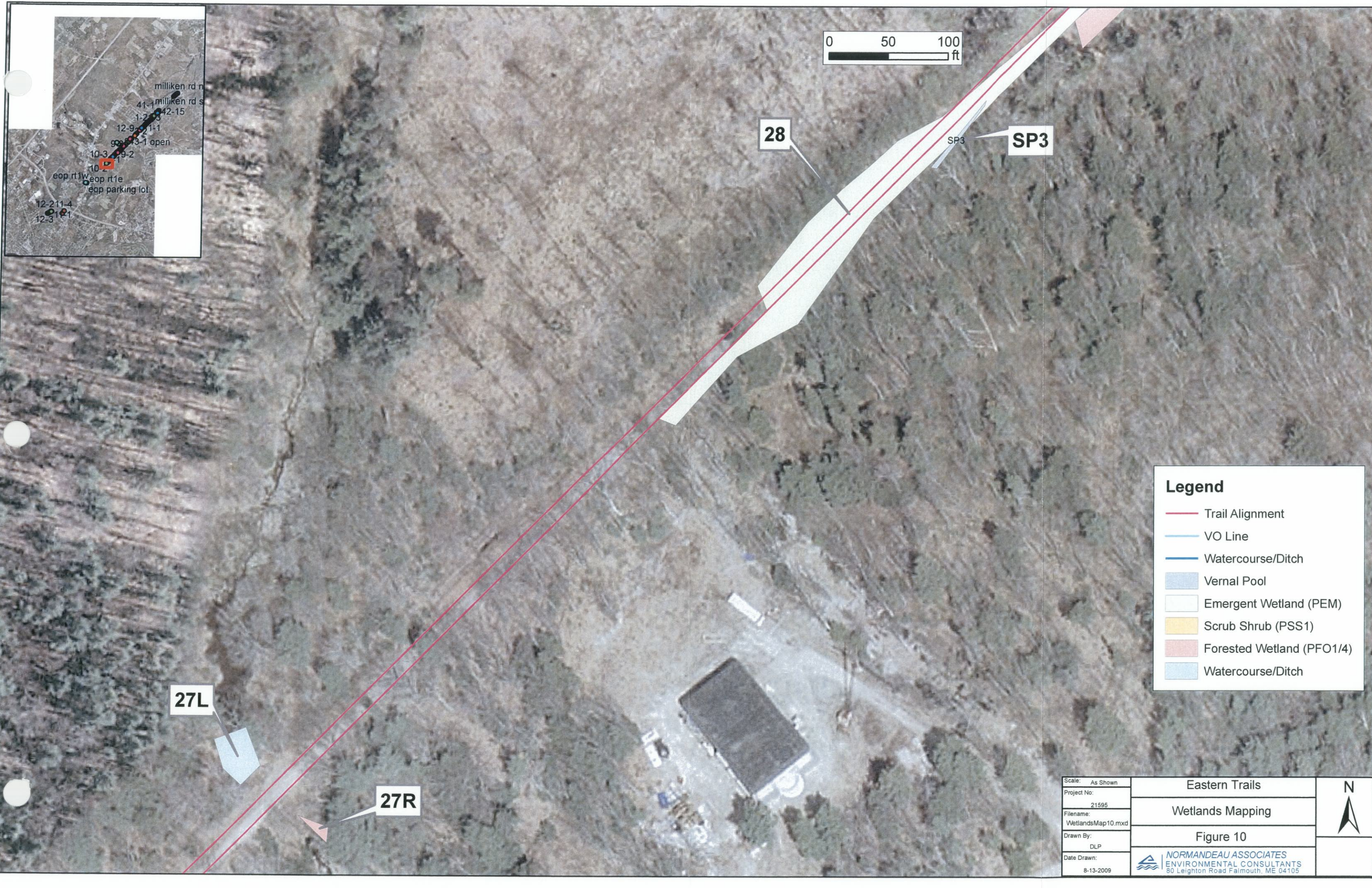
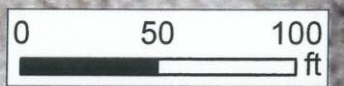




Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch


Scale: As Shown	Eastern Trails	Wetlands Mapping	Figure 9	
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Drawn By: DLP				
Date Drawn: 8-13-2009				



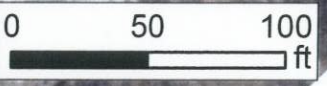
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- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale:	As Shown
Project No:	21595
Filename:	WetlandsMap10.mxd
Drawn By:	DLP
Date Drawn:	8-13-2009

Eastern Trails	
Wetlands Mapping	
Figure 10	
 NORMANDEAU ASSOCIATES ENVIRONMENTAL CONSULTANTS 80 Leighton Road Falmouth, ME 04105	

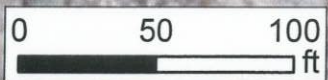




Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

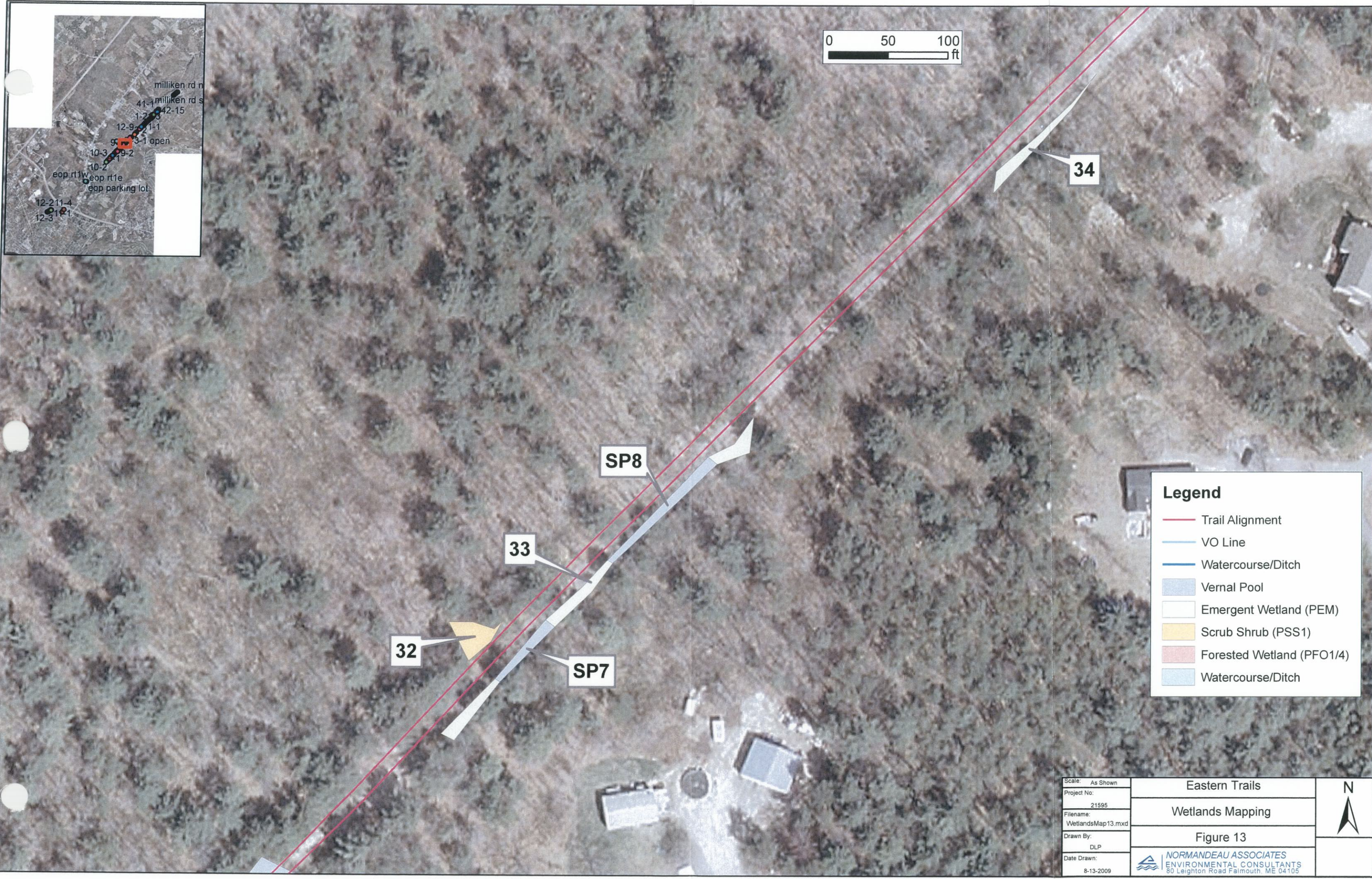
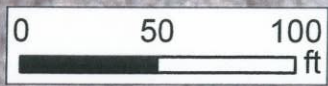
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Project No: 21595		
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Drawn By: DLP	Figure 11	
Date Drawn: 8-13-2009	NORMANDEAU ASSOCIATES ENVIRONMENTAL CONSULTANTS 80 Leighton Road Falmouth, ME 04105	



Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch


Scale: As Shown	Eastern Trails	N ↑
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Date Drawn: 8-13-2009		



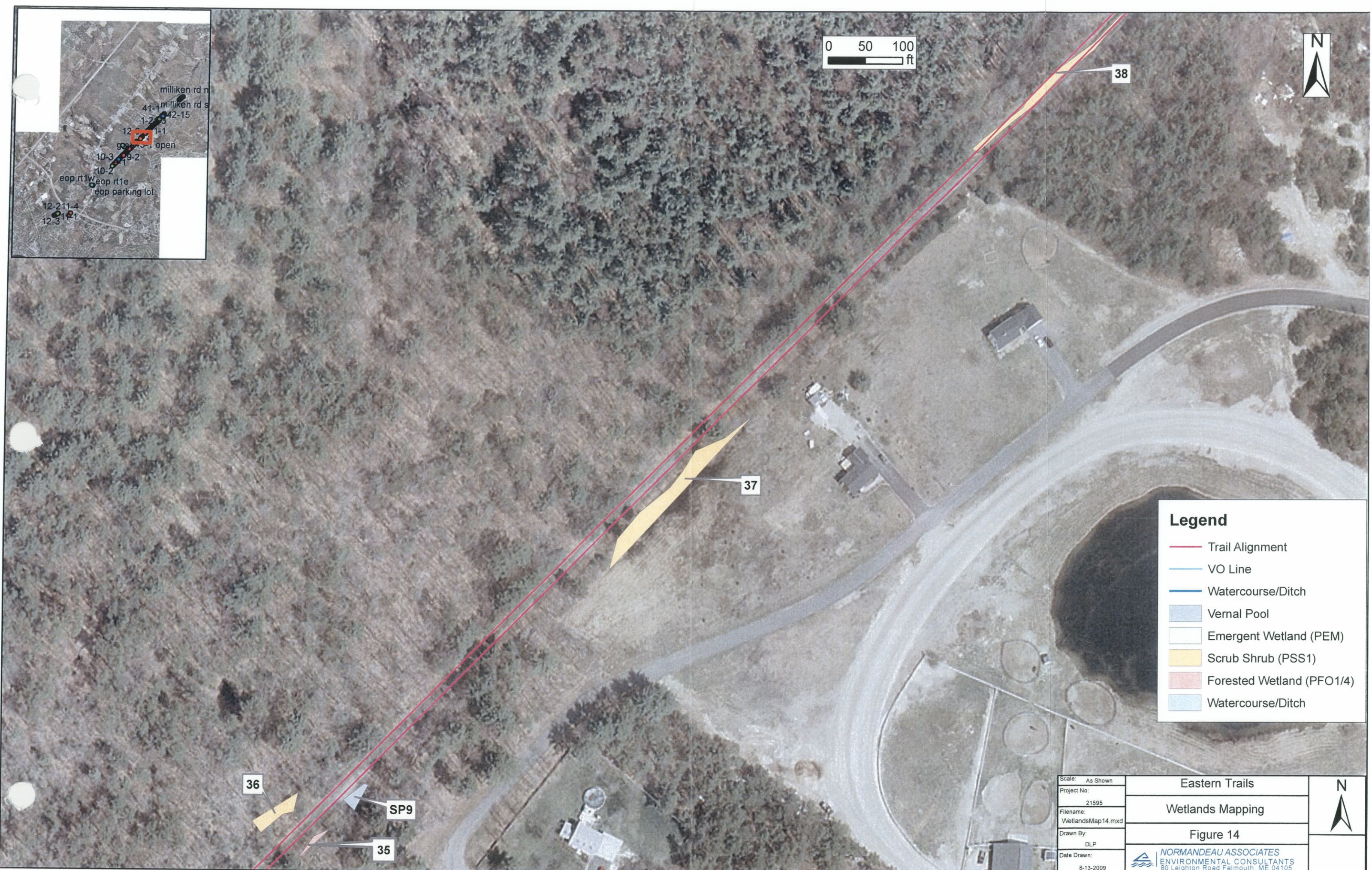
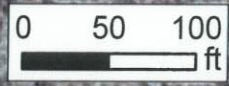
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- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale:	As Shown
Project No:	21595
Filename:	WetlandsMap13.mxd
Drawn By:	DLP
Date Drawn:	8-13-2009

Eastern Trails
Wetlands Mapping
Figure 13
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Legend


- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale:	As Shown
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Date Drawn:	8-13-2009

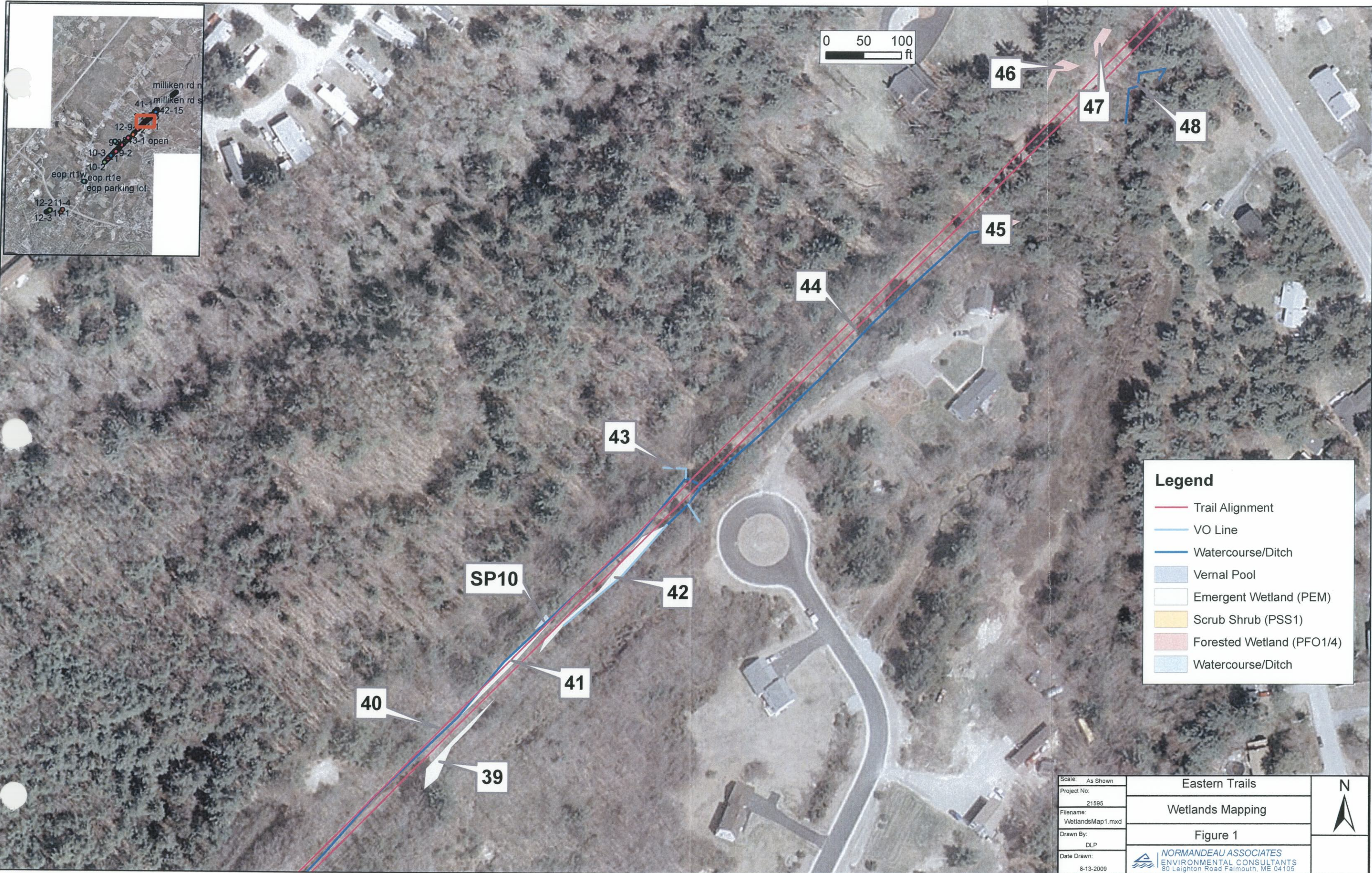
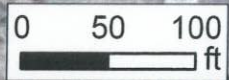
Eastern Trails

Wetlands Mapping

Figure 14


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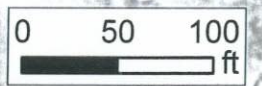




Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale: As Shown	Eastern Trails		
Project No: 21595	Wetlands Mapping		
Filename: WetlandsMap1.mxd	Figure 1		
Drawn By: DLP			
Date Drawn: 8-13-2009			

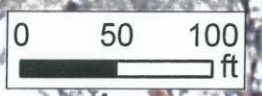


Legend	
	Trail Alignment
	VO Line
	Watercourse/Ditch
	Vernal Pool
	Emergent Wetland (PEM)
	Scrub Shrub (PSS1)
	Forested Wetland (PFO1/4)
	Watercourse/Ditch

Scale:	As Shown
Project No:	21595
Filename:	WetlandsMap16.mxd
Drawn By:	DLP
Date Drawn:	8-13-2009

Eastern Trails	
Wetlands Mapping	
Figure 16	
 NORMANDEAU ASSOCIATES ENVIRONMENTAL CONSULTANTS 80 Leighton Road Falmouth, ME 04105	





52

Legend

- Trail Alignment
- VO Line
- Watercourse/Ditch
- Vernal Pool
- Emergent Wetland (PEM)
- Scrub Shrub (PSS1)
- Forested Wetland (PFO1/4)
- Watercourse/Ditch

Scale: As Shown
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 Date Drawn: 8-13-2009

Eastern Trails
Wetlands Mapping
Figure 17

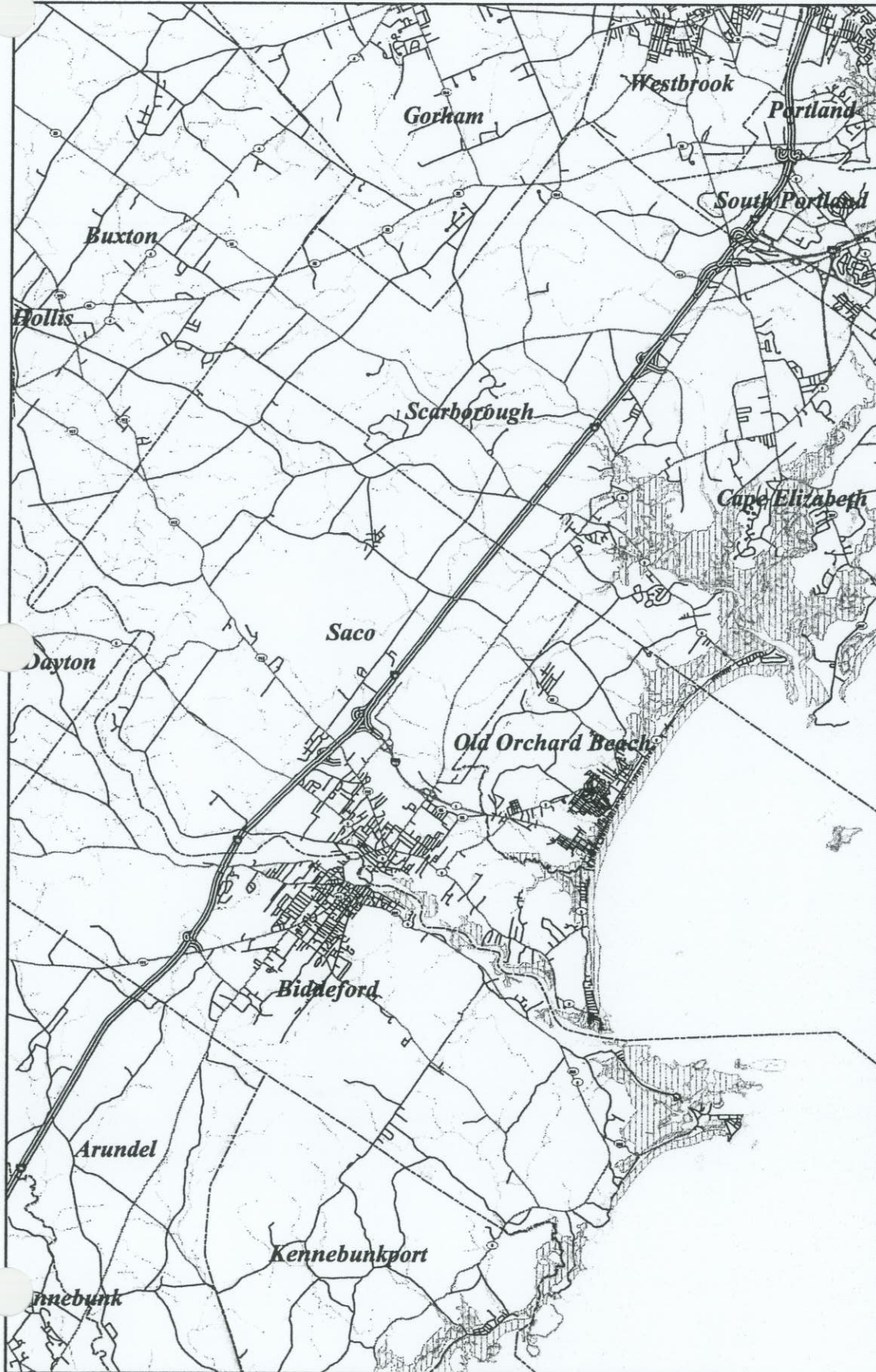
NORMANDEAU ASSOCIATES
 ENVIRONMENTAL CONSULTANTS
 80 Leighton Road Falmouth, ME 04105



APPENDIX B
Agency Responses

Saco

Significant Wildlife Habitat - Tidal Waterfowl and Wading Bird Habitats Only



--- Town lines

▨ Tidal waterfowl and wading bird habitat

Tidal waterfowl and wading bird habitats include no buffer, though a permit is required for activities within 75 feet of any coastal wetland.

This map represents significant wildlife habitat that is regulated by the Natural Resources Protection Act. All information on this map should be field checked by qualified individuals for a determination regarding whether your property is affected.

Background hydrologic, topographic, and political features are accurate to +/- 40 feet and are based on USGS topographic maps.



Map scale:

1:133,200

when printed on
8.5 x 11 paper

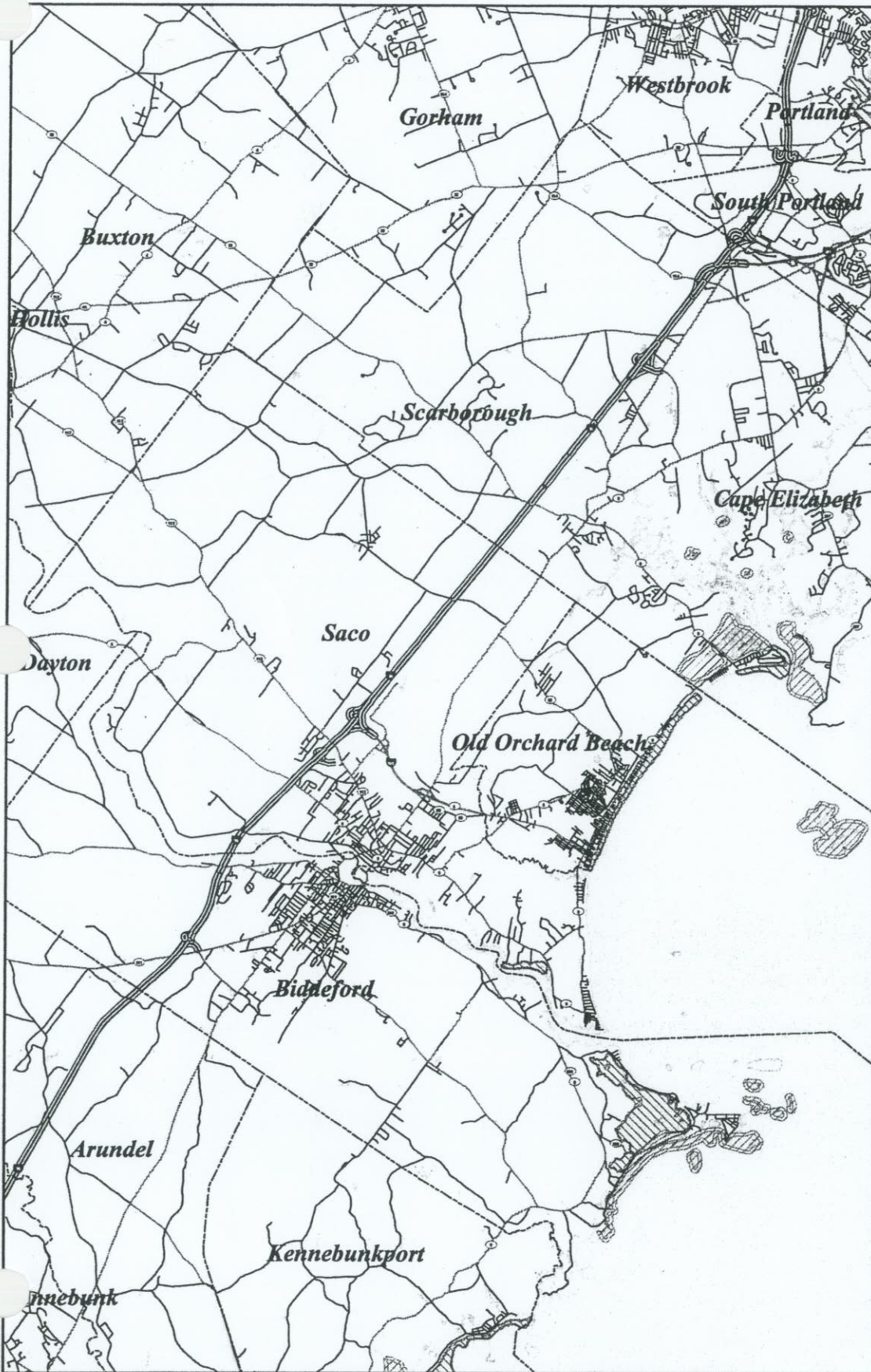




Questions or need a field visit? Contact DEP at 1-800-452-1942
www.maine.gov/dep/blwq/docstand/nrpa/birdhabitat

September 10, 2007

Saco

Significant Wildlife Habitat - Shorebird Habitats Only



- Town lines
-  Shorebird roosting area
-  Shorebird feeding area

Shorebird habitats are shown as defined by P.L. 2007 Chapter 290, effective June 14, 2007.

Shorebird feeding areas include a 100-foot-wide surrounding buffer referred to as the feeding buffer. Shorebird roosting areas include a 250-foot-wide surrounding buffer referred to as the roosting buffer.

This map represents significant wildlife habitat that is regulated by the Natural Resources Protection Act. All information on this map should be field checked by qualified individuals for a determination regarding whether your property is affected.

Background hydrologic, topographic, and political features are accurate to +/- 40 feet and are based on USGS topographic maps.

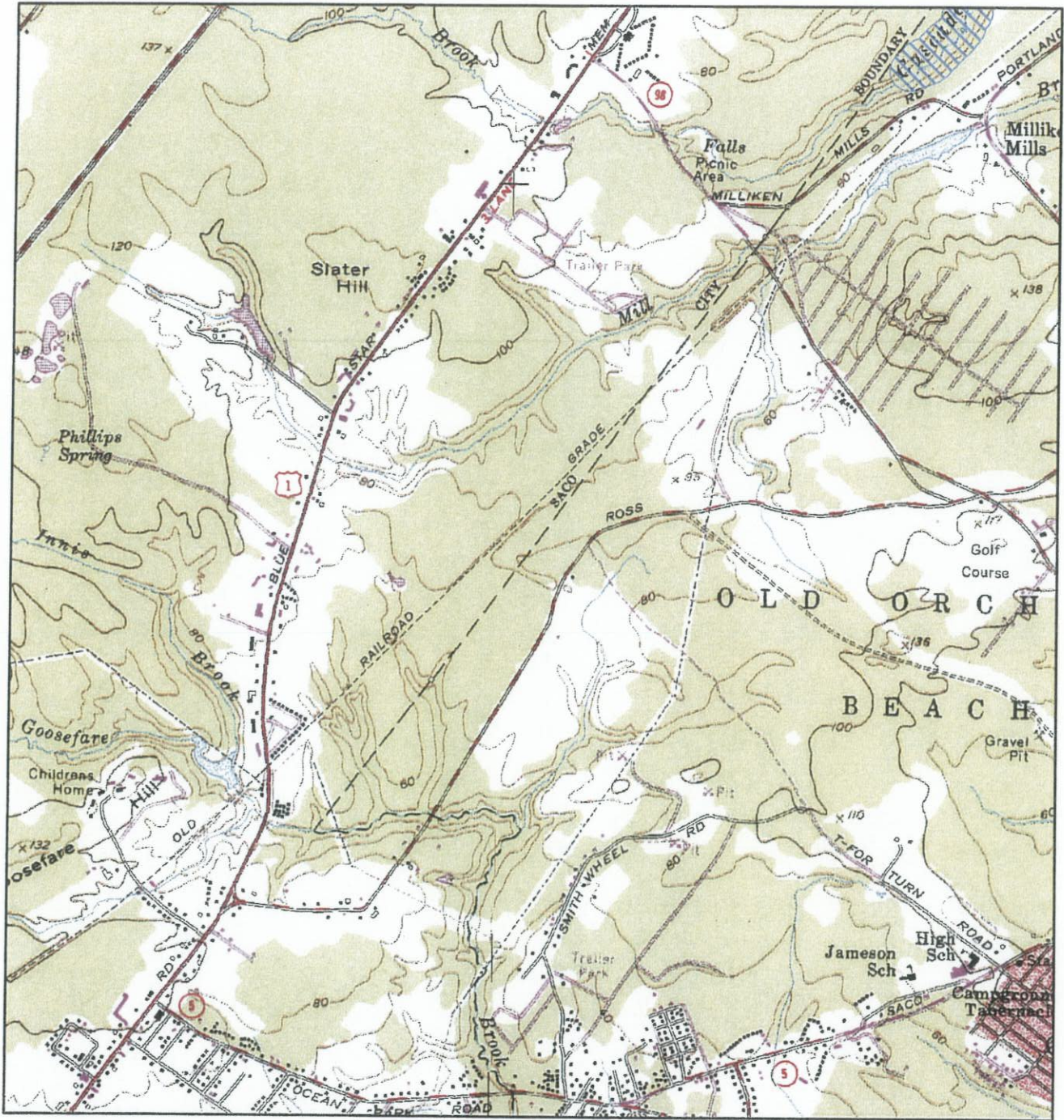


Map scale:
1:133,200
when printed on
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Questions or need a field visit? Contact DEP at 1-800-452-1942
www.maine.gov/dep/blwq/docstand/nrpa/birdhabitat

September 10, 2007



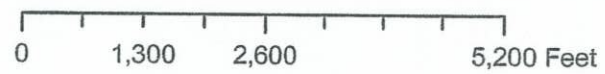
Eastern Trail Vicinity Saco/Old Orchard Beach

Legend

 IWWH_NRPA



Prepared by the Maine Department of Environmental Protection: Christina Stacey
 July 28, 2009
 All features obtained from OGIS 24K data layers





United States Department of the Interior



FISH AND WILDLIFE SERVICE

Maine Field Office – Ecological Services
1168 Main Street
Old Town, ME 04468
(207) 827-5938 Fax: (207) 827-6099

In Reply Refer To: 53411-2009-SL-0329
FWS/Region5/ES/MEFO

June 12, 2009

Ms. Jennifer West
Normandeau Associates, Inc.
80 Leighton Road
Falmouth, ME 04105

Dear Ms. West,

Thank you for your letter dated June 4, 2009 requesting information or recommendations from the U.S. Fish and Wildlife Service. This letter provides the Service's response pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d).

Project Name/Location: Pedestrian and Bike Trail, Old Orchard to Saco

Federally listed species

Based on the information currently available to us, no federally threatened or endangered species under the jurisdiction of the Service are known to occur in the project area. Accordingly, no further action is required under Section 7 of the ESA, unless: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Other protected species

We have not reviewed this project for state-threatened and endangered wildlife, wildlife species of special concern, and significant wildlife habitats protected under the Maine Natural Resources Protection Act. I recommend that you contact the Maine Department of Inland Fisheries and Wildlife:



Steve Timpano
Maine Department of Inland Fisheries and Wildlife
284 State St.
State House Station 41
Augusta, ME 04333-0041
Phone: 207 287-5258

Non-federally listed Atlantic salmon may occur in the project area. I recommend that you contact the Department of Marine Resources for additional information:

Norm Dube
Maine Department of Marine Resources
650 State St.
Bangor, ME 04401

I recommend that you contact the Maine Natural Areas Program for additional information on state-threatened and endangered plant species, plant species of special concern, and rare natural communities:

Lisa St. Hilaire
Maine Natural Areas Program
Department of Conservation
93 State House Station
Augusta, ME 04333
Phone: 207 287-8046

Bald eagles

Occasional, transient bald eagles (*Haliaeetus leucocephalus*) may occur in the area. Based on the information currently available to use, there are no bald eagle nests near your project. The bald eagle was removed from the federal threatened list on August 9, 2007 and is now protected from take under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. "Take" means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The term "disturb" under the Bald and Golden Eagle Protection Act was recently defined within a final rule published in the Federal Register on June 5, 2007 (72 Fed. Reg. 31332). "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

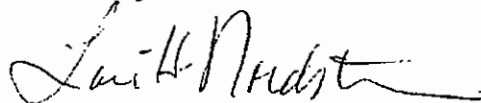
Further information on bald eagle delisting and their protection can be found at <http://www.fws.gov/migratorybirds/baldeagle.htm>.

Please consult with our new national bald eagle guidelines, which can found at <http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>.

These Guidelines are voluntary and were prepared to help landowners, land managers and others meet the intent of the Eagle Act and avoid disturbing bald eagles. If you believe your project will result in taking or disturbing bald or golden eagles, please contact our office for further guidance. We encourage early and frequent consultations to avoid take of eagles.

If you have any questions, please call Mark McCollough, endangered species biologist, at (207) 827-5938 ext.12.

Sincerely,

A handwritten signature in black ink, appearing to read "Lori H. Nordstrom". The signature is fluid and cursive, with a long horizontal flourish at the end.

Lori H. Nordstrom, Project Leader
Maine Field Office



STATE OF MAINE
DEPARTMENT OF CONSERVATION
93 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0093

JOHN ELIAS BALDACCI
GOVERNOR

PATRICK K. MCGOWAN
COMMISSIONER

June 9, 2009

Jennifer West
Normandeau Associates Inc.
80 Leighton Road
Falmouth, ME 04105

Re: Rare and exemplary botanical features, NAI # 21595.000, Eastern Trail, Saco to Old Orchard Beach, Maine.

Dear Ms. West:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of June 4, 2009 for information on the presence of rare or unique botanical features documented from the vicinity of the project site, from Saco to Old Orchard Beach, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

Letter to Jennifer West
Comments RE: NAI# 21595.000, Eastern Trail
June 9, 2009
Page 2 of 2

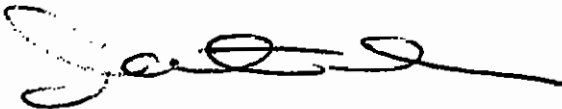
This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$75.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Janet Gannon
Associate Information Manager
Maine Natural Areas Program
207-287-8044

Janet.Gannon@maine.gov

Enclosures

Rare and Exemplary Botanical Features in the Project Vicinity

6/9/2001

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
<i>Samolus valerandi</i> ssp. <i>parviflorus</i> Water Pimpernel		2006-06-16	G5T5	S3	SC	Shallow water and wet soils.
<i>Sagittaria calycina</i> var. <i>spongiosa</i> Spongy Arrow-head		2000-08-28	G5T4	S3	SC	Tidewater marshes and streams.
<i>Selaginella apoda</i> Creeping Spike-moss		1924-08-21	G5	S2	E	Meadows, lawns, and streambanks.
<i>Zannichellia palustris</i> Horned Pondweed		1972-06-13	G5	S2	SC	Fresh, brackish or alkaline waters, and stream edges.
<i>Eriocaulon parkeri</i> Parker's Pipewort		1924-08-20	G3	S3	SC	Fresh to brackish tidal mud and estuaries.
<i>Carex sterilis</i> Dioecious Sedge		1936-07-14	G4	S3	SC	Wet calcareous soils.
<i>Selaginella apoda</i> Creeping Spike-moss		1920-07-30	G5	S2	E	Meadows, lawns, and streambanks.

duplicate

Rare and Exemplary Botanical Features in the Project Vicinity

3/9/2009

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
<i>Cenchrus longispinus</i>	Long-spined Sandbur	1984	G5	SH	PE	Dry sands of beaches, riverbanks, and openings.
<i>Prunus maritima</i>	Beach Plum	1933-05-19	G4	S1	E	Sandy soil along or near the coast.
<i>Agalinis maritima</i>	Saltmarsh False-foxglove	1982	G5	S3	SC	Saltmarshes.
<i>Zannichellia palustris</i>	Horned Pondweed	1907-08-18	G5	S2	SC	Fresh, brackish or alkaline waters, and stream edges.
<i>Ranunculus ambigens</i>	Water-plantain Spearwort	1862-08	G4	SH	PE	Sloughs, ditches, and muddy swamps.
<i>Prunus maritima</i>	Beach Plum	1933-06-21	G4	S1	E	Sandy soil along or near the coast.
<i>Prunus maritima</i>	Beach Plum	1932-09	G4	S1	E	Sandy soil along or near the coast.

Rare and Exemplary Botanical Features in the Project Vicinity

6/9/2009

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
<i>Ilex laevigata</i>	Smooth Winterberry Holly	1979	G5	S3	SC	Wetlands, wooded swamps.
<i>Ilex laevigata</i>	Smooth Winterberry Holly	1997-07-29	G5	S3	SC	Wetlands, wooded swamps.
<i>Asclepias tuberosa</i>	Butterfly Weed	1986	G5?	SX	PE	Dry, sandy soil
<i>Eupatorium fistulosum</i>	Hollow Joe-pye Weed	1989-08-21	G5?	S2	SC	Roadsides, moist ditches.
<i>Eupatorium fistulosum</i>	Hollow Joe-pye Weed	1989-08-14	G5?	S2	SC	Roadsides, moist ditches.
<i>Eupatorium fistulosum</i>	Hollow Joe-pye Weed	1989-08-22	G5?	S2	SC	Roadsides, moist ditches.
<i>Eupatorium fistulosum</i>	Hollow Joe-pye Weed	1989-08-14	G5?	S2	SC	Roadsides, moist ditches.

Rare and Exemplary Botanical Features in the Project Vicinity

3/9/2009

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
<i>Sassafras albidum</i> Sassafras		2006-07-17	G5	S2	SC	Woods and thickets.
<i>Prunus maritima</i> Beach Plum		1999-05-25	G4	S1	E	Sandy soil along or near the coast.
<i>Limosella australis</i> Mudwort		2006-06-16	G4G5	S3	SC	Fresh to brackish shores and wet sands.
<i>Selaginella apoda</i> Creeping Spike-moss		1989-08-14	G5	S2	E	Meadows, lawns, and streambanks.
<i>Salicornia bigelovii</i> Dwarf Glasswort		1981-09-16	G5	S1	SC	Saltmarshes.
<i>Prunus maritima</i> Beach Plum		1903-07-31	G4	S1	E	Sandy soil along or near the coast.
<i>Iris prismatica</i> Slender Blue Flag		1995-07-18	G4G5	S2	T	Brackish or saline to fresh marshes, sands, shores, or meadows, along coast.

Rare and Exemplary Botanical Features in the Project Vicinity

6/19/2009

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
<i>Zannichellia palustris</i>	Horned Pondweed	2000-08-28	G5	S2	SC	Fresh, brackish or alkaline waters, and stream edges.
<i>Ilex laevigata</i>	Smooth Winterberry Holly	1995-07-18	G5	S3	SC	Wetlands, wooded swamps.
<i>Carex vestita</i>	Clothed Sedge	2006-06-07	G5	S1	E	Dry sandy woods and clearings
<i>Carex vestita</i>	Clothed Sedge	2006-06-16	G5	S1	E	Dry sandy woods and clearings
<i>Sagittaria rigida</i>	Stiff Arrow-head	2006-06-16	G5	S2	T	Calcareous or brackish mud or water.
Tidal marsh estuary ecosystem						
Tidal Marsh Estuary Ecosystem		2006-08-08	GNR	S3		Intertidal portions of rivershores, from the head of tide to the mouth of the river. Salinity increases towards the mouth and saltmarshes are restricted to higher salinity areas.
<i>Calamagrostis cinnoides</i>	Small Reed-grass	2006-08-08	G5	S3	SC	Open areas: bogs, peaty meadows, wet rocks and shores.

Rare and Exemplary Botanical Features in the Project Vicinity

3/9/2009

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
<i>Crassula aquatica</i>	Pygmyweed	2007-07-05	G5	S2S3	SC	Margins of pools and on fresh to tidal shores.
<i>Lilaeopsis chinensis</i>	Lilaeopsis	2007-07-05	G5	S2	T	In mud of brackish marshes and tidal shores along the coast.
<i>Limosella australis</i>	Mudwort	2007-07-05	G4G5	S3	SC	Fresh to brackish shores and wet sands.
<i>Zannichellia palustris</i>	Horned Pondweed	2007-07-05	G5	S2	SC	Fresh, brackish or alkaline waters, and stream edges.
<i>Samolus valexandi</i> ssp. <i>parviflorus</i>	Water Pimpernel	2007-07-05	G5T5	S3	SC	Shallow water and wet soils.
<i>Carex bullata</i>	Bufton Sedge	2006-07-12	G5	S2	SC	

6

Rare and Exemplary Botanical Features in the Project Vicinity

6/19/2009

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
Hemlock - hardwood pocket swamp Pocket Swamp		1995-07-18	G5	S2		Relatively small swamps in catch basins or sloping saddles among low hills of the coastal plain of extreme southern Maine. Hemlock and red maple are characteristic; Nyssa
Spartina saltmarsh Salt-hay Saltmarsh		2006-08-08	G5	S3		Saltmarshes dominated by Spartina grasses. May form large expanses behind dunes, or may be found in pockets along larger rivers. Peat is typically more than a meter thick.
Brackish tidal marsh Brackish Tidal Marsh		2000-08-28	GNR	S3		Intertidal reaches in coastal impoundments, or between saltmarshes and freshwater marshes in larger tidal rivers. The downstream limit of this community is usually
Brackish tidal marsh Brackish Tidal Marsh		1992-08-11	GNR	S3		Intertidal reaches in coastal impoundments, or between saltmarshes and freshwater marshes in larger tidal rivers. The downstream limit of this community is usually
Freshwater tidal marsh Freshwater Tidal Marsh		2000-08-28	G4?	S2		Intertidal areas where inflow of freshwater creates lower salinity than in brackish marshes. Often near the head of tide. Substrate mud or gravelly mud.
Atlantic white cedar bog Atlantic White Cedar Bog		1996-06-13	G3G4	S1		Acidic basin peatlands with sparse to moderate Chamaecyparis thyoides over ericaceous shrubs in sphagnum peat. Atlantic white cedar bogs are limited to the coastal
Pitch pine bog Pitch Pine Bog		1996-06-13	G3G5	S2		Characteristic of southern Maine south along the coastal plain, these are partly or sparsely forested peatlands with pitch pine the typical tree. Typical bog conditions predominate

Rare and Exemplary Botanical Features in the Project Vicinity

5/9/2009

Documented within a Four-Mile Radius of the Proposed Eastern Trail, Saco/Old Orchard Beach, Maine.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Seen</u>	<u>Global Rarity Rank</u>	<u>State Rarity Rank</u>	<u>State Protection Status</u>	<u>Habitat Description</u>
Raised level bog ecosystem Raised Level Bog Ecosystem		2006-07-12	GNR	S4		Raised (but not concentrically patterned) peatlands in basins with mostly closed drainage. Sphagnum dominates the ground surface and is the main peat constituent.
Salicornia bigelovii Dwarf Glasswort		2006-06-21	G5	S1	SC	Saltmarshes.
Chamaecyparis thyoides Atlantic White-cedar		1996-06-13	G4	S2	SC	Swamps.
Coastal dune-marsh ecosystem Coastal Dune-marsh Ecosystem		2006-06-21	GNR	S3		Low-lying coastal areas with sand beaches, dunes, and (in places) saltmarshes behind the dunes. Most common along the southwestern coast; uncommon east of Penobscot bay.
Lilaeopsis chinensis Lilaeopsis		2000-08-28	G5	S2	T	In mud of brackish marshes and tidal shores along the coast.
Crassula aquatica Pygmyweed		2006-06-16	G5	S2S3	SC	Margins of pools and on fresh to tidal shores.
Eriocaulon parkeri Parker's Pipewort		2000-08-28	G3	S3	SC	Fresh to brackish tidal mud and estuaries.

STATE RARITY RANKS

- S1** Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2** Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (20-100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.
- SH** Known historically from the state, not verified in the past 20 years.
- SX** Apparently extirpated from the state, loss of last known occurrence has been documented.
- SU** Under consideration for assigning rarity status; more information needed on threats or distribution.
- S#?** Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: State Rarity Ranks are determined by the Maine Natural Areas Program.

GLOBAL RARITY RANKS

- G1** Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
- G2** Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (20-100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.
- GNR** Not yet ranked.

Note: Global Ranks are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered and Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E** **ENDANGERED**; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
- T** **THREATENED**; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

- SC** **SPECIAL CONCERN**; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE** **Potentially Extirpated**; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

Visit our website for more information on rare, threatened, and endangered species!
<http://www.maine.gov/doc/nrimc/mnap>



Maine Department of Inland
Fisheries and Wildlife
358 Shaker Road
Gray, Maine 04039



Telephone: 207-657-2345 ext.113
Fax: 207-657-2980
Email: brian.lewis @maine.gov

John Elias Baldacci, Governor

Roland Martin, Commissioner

July 30, 2009

Jennifer West
80 Leighton Road
Falmouth Maine 04105

RE: Wetland Review, Eastern Trail, Old Orchard to Saco segment

Dear Jennifer West,

I have reviewed your request for fishery resource information, and there are no known threatened/endangered fish species or habitat in the vicinity of the proposed project. However, the proposed trail crosses Goosefare brook (and tributaries) and Mill Brook (and tributaries). Both drainages support wild brook trout. Region A fisheries requests a non-disturbance policy within 100 feet of all streams crossed by the trail with the exception of the minimum needed for construction and maintenance. Please observe the in stream work window below when altering stream crossings. Our regional riparian buffer policy is outlined below.

Stream systems are vulnerable to environmental impacts associated with increased development and encroachment. If present, this project should be sensitive to these resource issues by including provisions for riparian buffers and minimizing any other potential stream impacts. Our regional buffer policy requests 100 foot undisturbed buffers along both sides of any stream or stream-associated wetlands. Buffers should be measured from the upland wetland edge of stream-associated wetlands, and if the natural vegetation has been previously altered then restoration may be warranted. This buffer requirement improves erosion/sedimentation problems; reduces thermal impacts; maintains water quality; supplies leaf litter and woody debris for the system; and provides valuable wildlife habitat. Protection of these important riparian functions insures that the overall health of the stream habitat is maintained.

Stream crossings must include provisions for adequate fish passage, and any in-stream work needs to be done between the first of July and the first of October. Project design should minimize the number of stream crossings. If you have any additional questions or concerns then feel free to contact us.

Sincerely,

Brian Lewis
Fishery Specialist
MDIFW



MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JOHN ELIAS BALDACCI
GOVERNOR

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

June 23, 2009

Ms. Jennifer West
Normandeau Associates
80 Leighton Road
Falmouth, ME 04105

RE: Eastern Trail, Old Orchard to Saco segment, MDOT PIN 13340.00

Dear Ms. West:

We received your request for "significant historic resources" information for this project in your letter dated June 16th. We have a standing agreement with MDOT/Environmental Services for historic and archaeological resources consultation directly between our two agencies on MDOT projects. MDOT/ES has confirmed that the agreement applies to this project in an email dated June 17th.

We are, of course, happy to answer such requests on non-MDOT projects, but would like to avoid the duplication of effort that would result on MDOT projects.

Sincerely,

Dr. Arthur Spiess
Senior Archaeologist

arthur.spiess@maine.gov



PENOBSCOT NATION

TRIBAL ADMINISTRATION



COMMUNITY CENTER
INDIAN ISLAND, MAINE 04468
TEL.: 207/827-7776

Bonnie Newsom, THPO
Penobscot Indian Nation
12 Wabanaki Way
Indian Island, ME 04468
Phone No.: (207) 817-7332
Fax No.: (207) 817-7463

FAX SHEET

DATE: 6-24-09

FAX NO.: 797-7761
No. of Page(s) 2

TO: Jennifer West

FROM: Bonnie Newsom

SUBJECT: Old Orchard - Saco - Maine

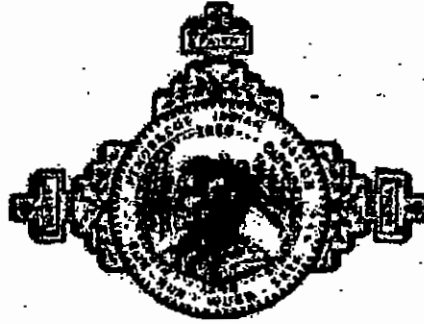
MESSAGE:

Please find attached a no objection letter
from Bonnie Newsom, THPO for the Penobscot
Nation.

If you have any questions, please do not
hesitate to contact her.

Thank you!

Catha Lewey
Office Manager



PENOBSCOT INDIAN NATION
BONNIE NEWSOM - ARCHAEOLOGY DEPARTMENT
12 WABANAKI WAY, INDIAN ISLAND, ME 04468
E-MAIL: bnewsom@penobscotnation.org Fax: 207-817-7463

NAME	Jennifer West
ADDRESS	Normandeau Associates, Inc. 80 Leighton Road Falmouth, ME 04105
OWNER'S NAME	MDOT
TELEPHONE	(207) 797-7717
FAX	(207) 797-7761
EMAIL	
PROJECT NAME	Eastern trail bike and pedestrian corridor PIN #13340.00
PROJECT SITE	Old Orchard-Saco, ME
DATE OF REQUEST	June 4, 2009
DATE REVIEWED	June 24, 2009

Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, and subsequent updates.

Also, if Native American cultural materials are encountered during the course of the project, please contact me at (207) 817-7332. Thank you.

A handwritten signature in black ink, appearing to read "Bonnie Newsom, Thro".

BONNIE NEWSOM, THRO
Penobscot Nation

APPENDIX C

Summary Tables

Table 1. Vernal Pool Survey Results

Reference ID	Pool Name	Depth	Observations		Inlet/Outlet	Natural	Physical Characteristics	Notes	Associated Wetland	Significant VP Habitat	Vernal Pool
			W/eggs/masses	S/eggs/masses							
Clark St. to I-195											
SP1	VP12	NA	25+	25+/27+	ND	N	2	Large pool extending off ROW into wetland, which contains vp habitat	6	N	Y
SP2	VP11	12"	0	6/3	N	N	2	In ROW travel area	7	N	Y
I-195 to Cascade Road											
SP3	VP10	9"	0	4/2	Y	N	2	small pool adjacent to culvert	28	N	Y
SP4	VP 14	12"		ND/6	Y	N	2	ephemeral outlet, not reviewed 4/17	29C	N	Y
SP5	VP9	20"	5	15/2	N	N	2	big pool covering the entire ROW	31	N	Y
SP6	VP8	24"	0	11/5	N	N	2	big pool covering the entire ROW	31	N	Y
SP7	VP7	12"	0	4/6	N	N	2	in ditch on trail	33	N	Y
SP8	VP6	16"	0	2/2	N	N	2	in ditch	33	N	Y
SP9	VP3	12"	6/3	0	N	N	1	in ROW travel area	north of 35	N	Y
Sp10	VP1	6"	0	4/5	Y	N	1	in ditch with flowing water	40	N	Y

1. Observations made on First visit- April 17/Second visit- April 29, 2009. ND: not determined

2. 1- Isolated; 2- associated with wetland complex.

3. Significant Vernal Pool habitat as defined by NRPA Chapter 335.

4. US Army Corps of Engineers, Maine Programmatic General Permit

Table 3. Wetlands of Special Significance

Location	Wetland ID	Wetland Feature		PEM/POW >20,000SF
		Stream	Floodplain	
Clark St. to I-195				
	3	X		
	6			potential
	8	X		
	9			potential
I-195 to Rt. 1				
	11	X		
	15	X		
	19	X		
	20	X	X	
Rt. 1 to Cascade				
	22	X		
	23	X		
	24	X		
	25	X		
	26	X		
	27	X		
	29			potential
	48	X		
Cascade to Milliken Mills				
	49	X	X	
	50	X	X	
	51	X		

APPENDIX D

Photographs



Seasonal Pool 2 (4-29-09)



Seasonal Pool 3 (4-29-09)



Seasonal Pool 5 (4-29-09)



Seasonal Pool 8 (4-29-09)



5- Scrub/shrub wetland bordering active rail line



6- Scrub/shrub wetland containing seasonal pool 1



9- Facing south at large scrub/shrub wetland
bordering south side of I-195



9-Emergent/scrub wetland within ROW
south side of I-195



17- Emergent wetland extends across corridor



29- Corridor bisects wetland



39- Emergent wetland bordering corridor



42- emergent wetland with ditch bordering trail



15- Ditched tributary of Goosefare Brook



22-Intermittent Stream
within powerline right-of-way, recently ditched



24- Intermittent stream



25- Perennial stream upslope of corridor,
extensive sediment load deposited in stream bed.



Ditch 40



48- Mill Brook tributary, perennial stream facing south



Plot 3W facing west (7-14-09)



Plot 3U facing east (7-14-09)

APPENDIX E

Data

PROJECT TITLE: Eastern Trail

TRANSECT: 1

PLOT: W

DELINEATOR(S): Jennifer West

No upland plot - within trail
DATE: 5.13.09

VEGETATION

Stratum and Species

Dominance Ratio

Percent Dominance

DOM

NWI Status

Shrubs

Alnus incana

20/30

66

✓ FacW⁺

Acer rubrum

10

33

✓ Fac

Herbaceous

Spirea latifolia

5/52

Onoclea sensibilis

40

77

✓ FacW

Carex spp.

5

Alnus incana

2

HYDROPHYTES

NON-HYDROPHYTES

OBL

2 FACW

1 FAC

*OTHER

FAC-

FACU

UPL

Hydrophytes Subtotal (A): 3

Non-hydrophytes Subtotal (B):

PERCENT HYDROPHYTES (100A/A+B): 100

HYDROLOGY

RECORDED DATA

Stream, lake, or tidal gage

Identification: _____

Aerial photography

Identification: _____

Other

Identification: _____

NO RECORDED DATA

OBSERVATIONS:

Depth to Free Water: 10"

Depth to Saturation (including capillary fringe): Subtracted to surface

Altered Hydrology (explain): _____

Inundated

Saturated in upper 12"

Water Marks

Drift Lines

Sediment Deposits

Drainage Patterns within Welland

OTHER (explain):

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-4"	A	10XR2/1		Sandy loam
4-10		10XR4/2	7.5 XR 3/3 fines, 15%	↓
10 -		10XR3/1	↓	↓

HYDRIC SOIL INDICATOR(S): SII REFERENCE(S): FLEHSENF 2004
 Disturbed soils within former rail corridor. Hydric morphology present - dark thick surface horizon with redox features.

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:
 Soil drainage class: poorly
 Depth to active water table:
 NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Hydric soils criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wetland hydrology criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

PROJECT TITLE: Eastern Trail

TRANSECT. 1

PLOT: W

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-12"	A _p	10YR 2/1, 3/3 mixed	10YR 4/1 fine, few	gravelly loamy sand
12-	C	10YR 4/1		extremely gravelly loamy sand
50 & 14"				

HYDRIC SOIL INDICATOR(S): VII

REFERENCE(S):

Hydric morphology. Dark A with redox

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:

Soil drainage class: *poorly*

Depth to active water table:

NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Hydric soils criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wetland hydrology criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

CENAE-COR-PT Version 7/100 Page 2

PROJECT TITLE: *Eastern Trail*

TRANSECT. *2*

PLOT: *W*

PROJECT TITLE: Eastern Trail

TRANSECT: 2
No upland plot

PLOT: W

DELINEATOR(S): Jennifer West

DATE: 7/14/09

VEGETATION

Stratum and Species

Dominance Ratio

Percent Dominance

DOM

NWI Status

Trees

Pinus strobus * DBH 5, 12, 12
Acer rubrum 5

(on edge of ROW)

172/186
14

92
7

✓ FACU*

Saplings (on edge of ROW)

Acer rubrum
Betula populifolia
Quercus bicolor
Tsuga canadensis *

15/40
5

38
12

✓ FAC

✓ FAC

✓ FACW+

✓ FACU*

Shrubs

Ilex verticillata
Vaccinium corymbosum
Lyonia ligustrina

20/50
20
10

40
40
20

✓ FACW+

✓ FACW-

✓ FACW

Herbaceous

Carex scoparia
Carex lasiocarpa
Juncus effusus
Scirpus atrovirens

20/65
25
5
15

31
38
7
23

✓ FACW

✓ OBI

✓ OBI

* shallow rooted

HYDROPHYTES

NON-HYDROPHYTES

2 5 2 2
OBL FACW FAC *OTHER

FAC- FACU UPL

Hydrophytes Subtotal (A): 11

Non-hydrophytes Subtotal (B):

PERCENT HYDROPHYTES (100A/A+B): 100

HYDROLOGY

RECORDED DATA

Stream, lake, or tidal gage
Aerial photography
Other

Identification: _____
Identification: _____
Identification: _____

NO RECORDED DATA

OBSERVATIONS:

Depth to Free Water: Saturated to surface, some perching
Depth to Saturation (including capillary fringe): " "
Altered Hydrology (explain): _____

- Inundated Saturated in upper 12" Water Marks Drift Lines Sediment Deposits Drainage Patterns within Wetland
- OTHER (explain): _____

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-12"	A _p	10YR3/1		very fine sandy loam
12-16	B _w	2.5Y4/2	10YR 3/4, 2%	↓
16 -	C	5Y4/2	10YR3/4, 15%	silty clay loam
60 & 18"				

HYDRIC SOIL INDICATOR(S):

Hydric morphology present.

REFERENCE(S):

Dark A horizon with redox features

OPTIONAL SOIL DATA

REFERENCE(S):

Taxonomic subgroup:

Soil drainage class: *poorly*

Depth to active water table:

NTCHS hydric soil criterion:

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Hydric soils criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Wetland hydrology criterion met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

CENAE-COR-PT Version 7/100 Page 2

PROJECT TITLE: *Eastern Trail*

TRANSECT. *3*

PLOT: *W*

PROJECT TITLE: Eastern Trail

TRANSECT: 3

PLOT: W

DELINEATOR(S): Jennifer Hart

DATE: 7.14.09

VEGETATION

Stratum and Species

Dominance Ratio

Percent Dominance

DOM

NWI Status

Trees

Acer rubrum 5, 7, 6, 5, 10, 6, 10

205/254

81

✓ Fac

Ulmus americana 5

14

5

Larix laricina * 9

35

14

Shrubs

A. rubrum

20/50

40

✓ Fac

Carpinus caroliniana

30

60

✓ Fac

shrubs

Carpinus caroliniana

30/30

100

✓ Fac

Herbaceous

Rhus radicans

5/20

25

✓ upl

C. caroliniana

5

25

✓ Fac

Arisaema spp

T

Carex spp.

5

25

✓ Fac

Dryopteris spinulosa

5

25

✓ Fac +

* Shallow rooted

HYDROPHYTES

NON-HYDROPHYTES

OBL FACW FAC *OTHER

FAC- FACU UPL

Hydrophytes Subtotal (A): 7

Non-hydrophytes Subtotal (B): 1

PERCENT HYDROPHYTES (100A/A+B): 88%

HYDROLOGY

- RECORDED DATA
 - Stream, lake, or tidal gage
 - Aerial photography
 - Other

Identification: _____
 Identification: _____
 Identification: _____

NO RECORDED DATA

OBSERVATIONS:

Depth to Free Water: 8"
 Depth to Saturation (including capillary fringe): Saturated to surface
 Altered Hydrology (explain): _____

- Inundated
- Saturated in upper 12"
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns within Wetland
- OTHER (explain): _____

SOIL Sketch landscape position of this plot. Indicate relative position of other plot(s) and the wetland flag if not on plan.

Submission of photo of plot is encouraged.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES (color, abundance, size, contrast)	COMMENTS (USDA texture, nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.)
0-4"	0 ₂	10 YR 3/1		
4-10	A	7.5 YR 2.5/1 mixed 3/2		fine sandy loam ↓
10-	B ₅	7.5 YR 3/4		
60 x 16"				

HYDRIC SOIL INDICATOR(S):

Lacks hydric morphology

REFERENCE(S):

OPTIONAL SOIL DATA

Taxonomic subgroup:

Soil drainage class: moderately well

Depth to active water table:

NTCHS hydric soil criterion:

REFERENCE(S):

CONCLUSIONS

	YES	NO	REMARKS:
Hydrophytic vegetation criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hydric soils criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Wetland hydrology criterion met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
IS THIS DATAPOINT IN A WETLAND?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

CENAE-COR-PT Version 7/1/00 Page 2

PROJECT TITLE: Eastern Trail

TRANSECT. 3

PLOT: U

PROJECT TITLE: *Eastern Trail*

TRANSECT: *3*

PLOT: *U*

DELINEATOR(S): *Jennifer West*

DATE: *7.14.09*

VEGETATION

Stratum and Species

Dominance Ratio

Percent Dominance

DOM

NWI Status

Trees

Quercus rubra 10, 5, 5, 12, 10, 14

245/313

78

✓ facU-

Fraxinus pennsylvanica 7

27

9

Acer rubrum 7, 5

41

13

Saplings

Acer saccharum

20/50

40

✓ Upl

Quercus rubra

20

40

✓ facU-

F. pennsylvanica

10

20

✓ facW

Shrubs

Pinus strobus

10/25

40

✓ Upl

Prunus serotina

5

20

✓ facU

Carpinus caroliniana

10

40

✓ fac

Herbaceous

Sensorylla, *Aralia nudicaulis*

35/60

58

✓ facU

P. serotina

5

Vaccinium angustifolium

10

17

Gaultheria procumbens

10

17

HYDROPHYTES

NON-HYDROPHYTES

OBL 1 FACW 1 FAC *OTHER

FAC- 4 FACU 2 UPL

Hydrophytes Subtotal (A): 2

Non-hydrophytes Subtotal (B): 6

PERCENT HYDROPHYTES (100A/A+B): 25

HYDROLOGY

RECORDED DATA

Stream, lake, or tidal gage

Identification: _____

Aerial photography

Identification: _____

Other

Identification: _____

NO RECORDED DATA

OBSERVATIONS:

Depth to Free Water: no free water

Depth to Saturation (including capillary fringe): no saturation

Altered Hydrology (explain): _____

Inundated

Saturated in upper 12"

Water Marks

Drift Lines

Sediment Deposits

Drainage Patterns within Wetland

OTHER (explain):

None