

## FIGURES AND SITE PHOTOS

---

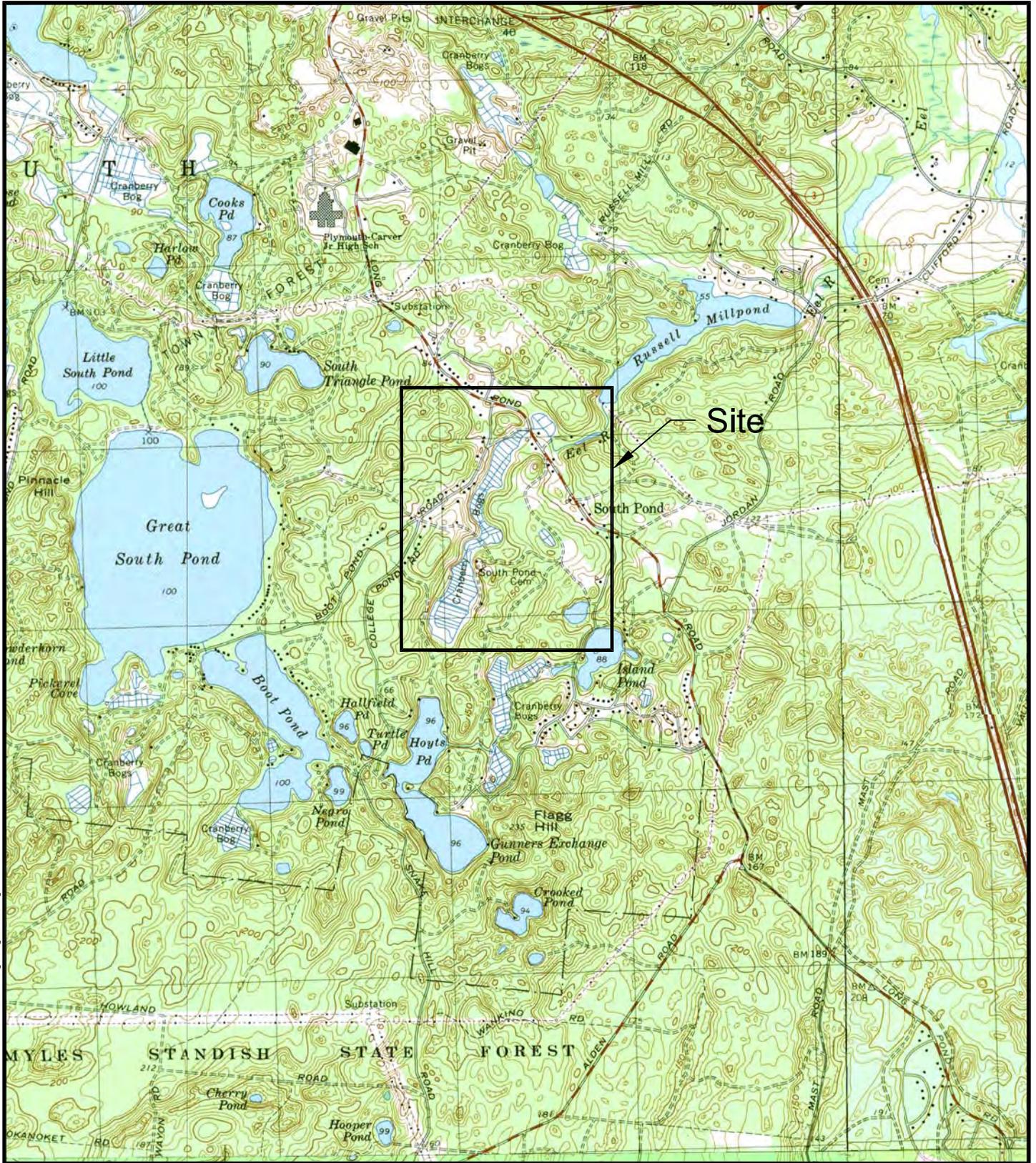
Figure 1 – USGS Locus Map

Figure 2 – Historic Maps

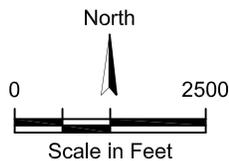
Figure 3 – FEMA Flood Map

Figure 4 – NHEPS Maps

Representative Site Photos



last modified: 02/11/08 printed: 02/13/08 by tw J:\7132 Eel River Headwaters Rest\Drawings\dwg\Locus.dwg



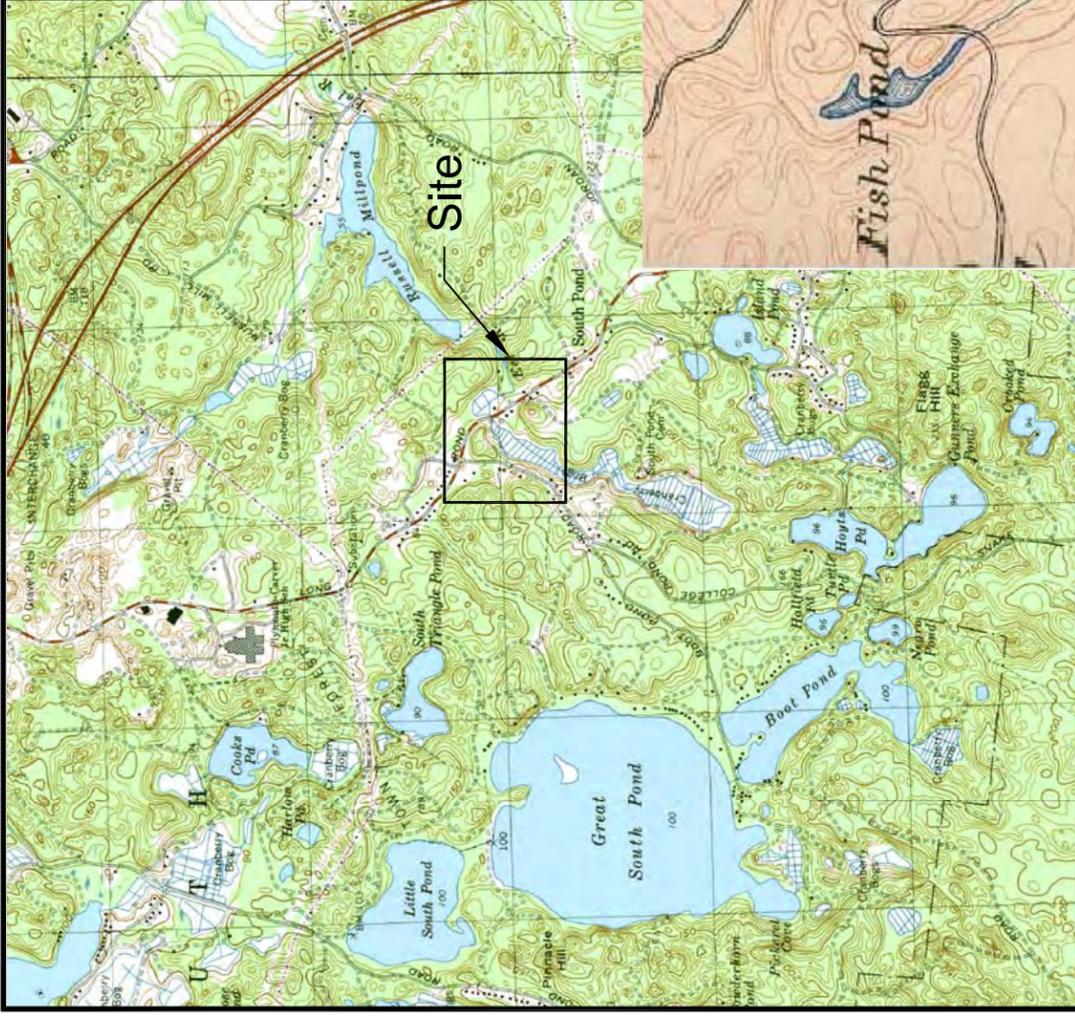
**Horsley Witten Group**  
 Sustainable Environmental Solutions  
 www.horsleywitten.com



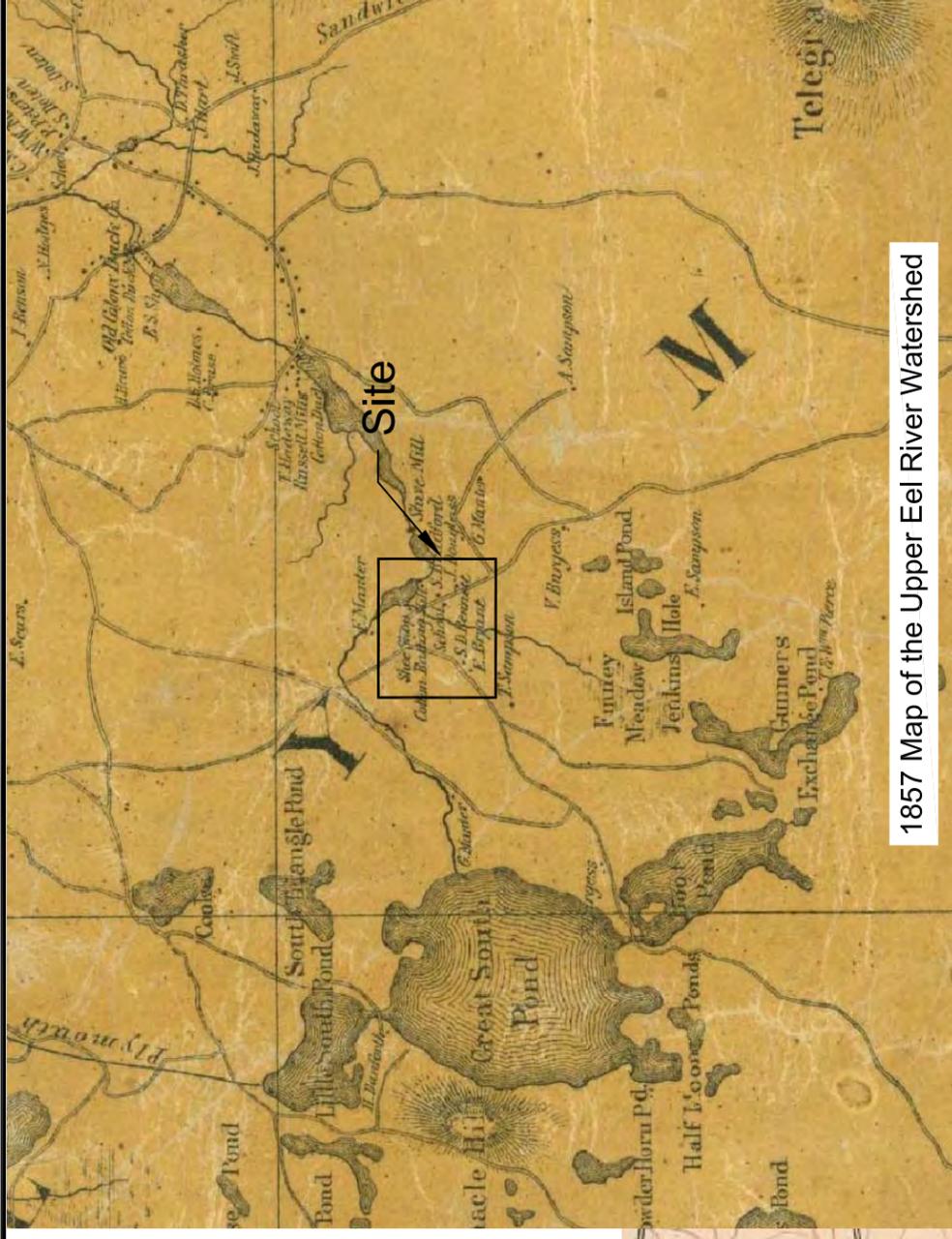
**Eel River Restoration**  
**Locus Map**  
**Plymouth, MA**

02/11/08 TW Locus.dwg

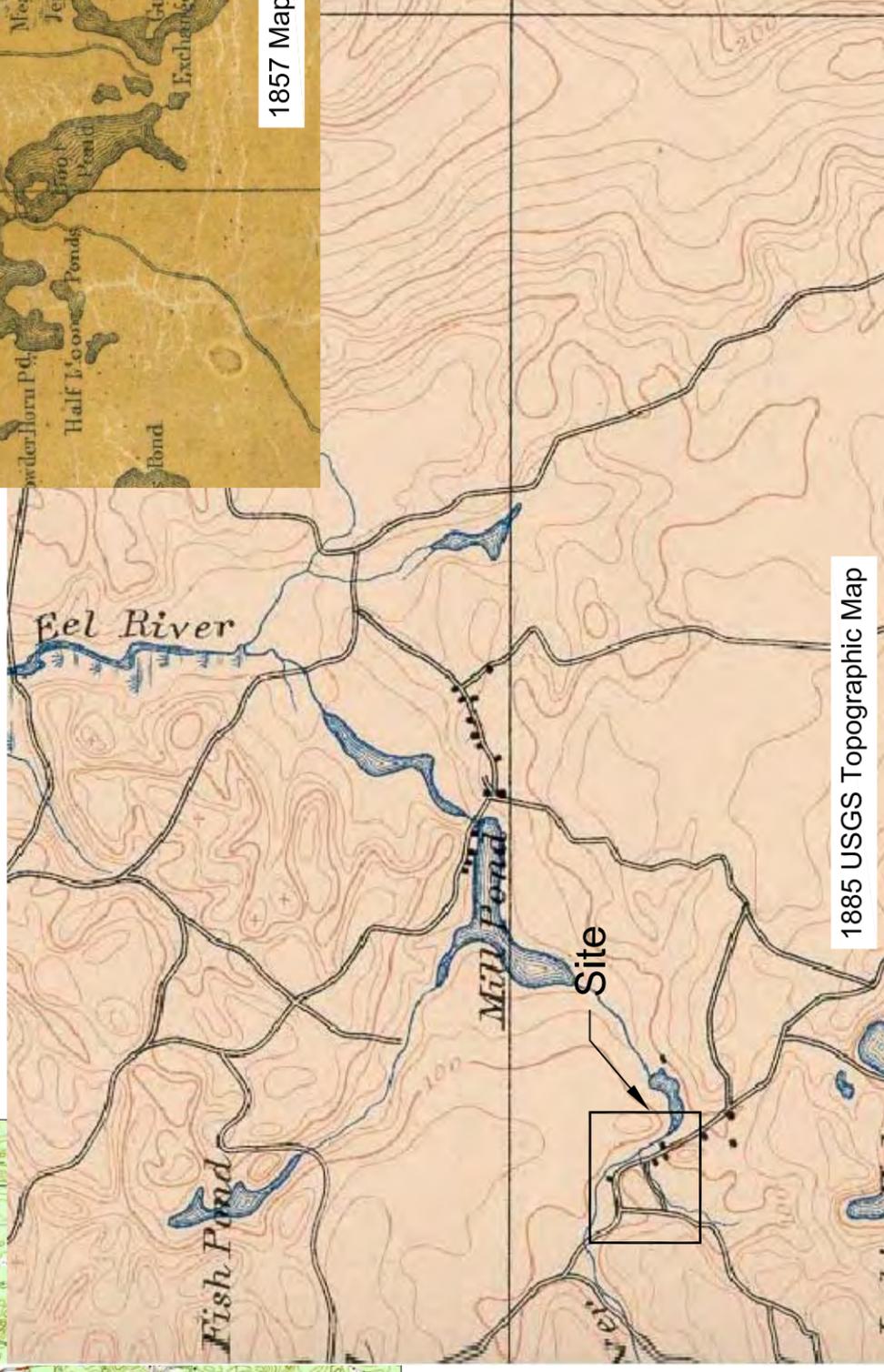
Figure 1



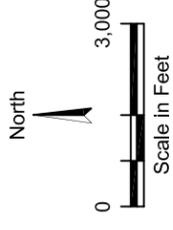
1995 USGS Topographic Map

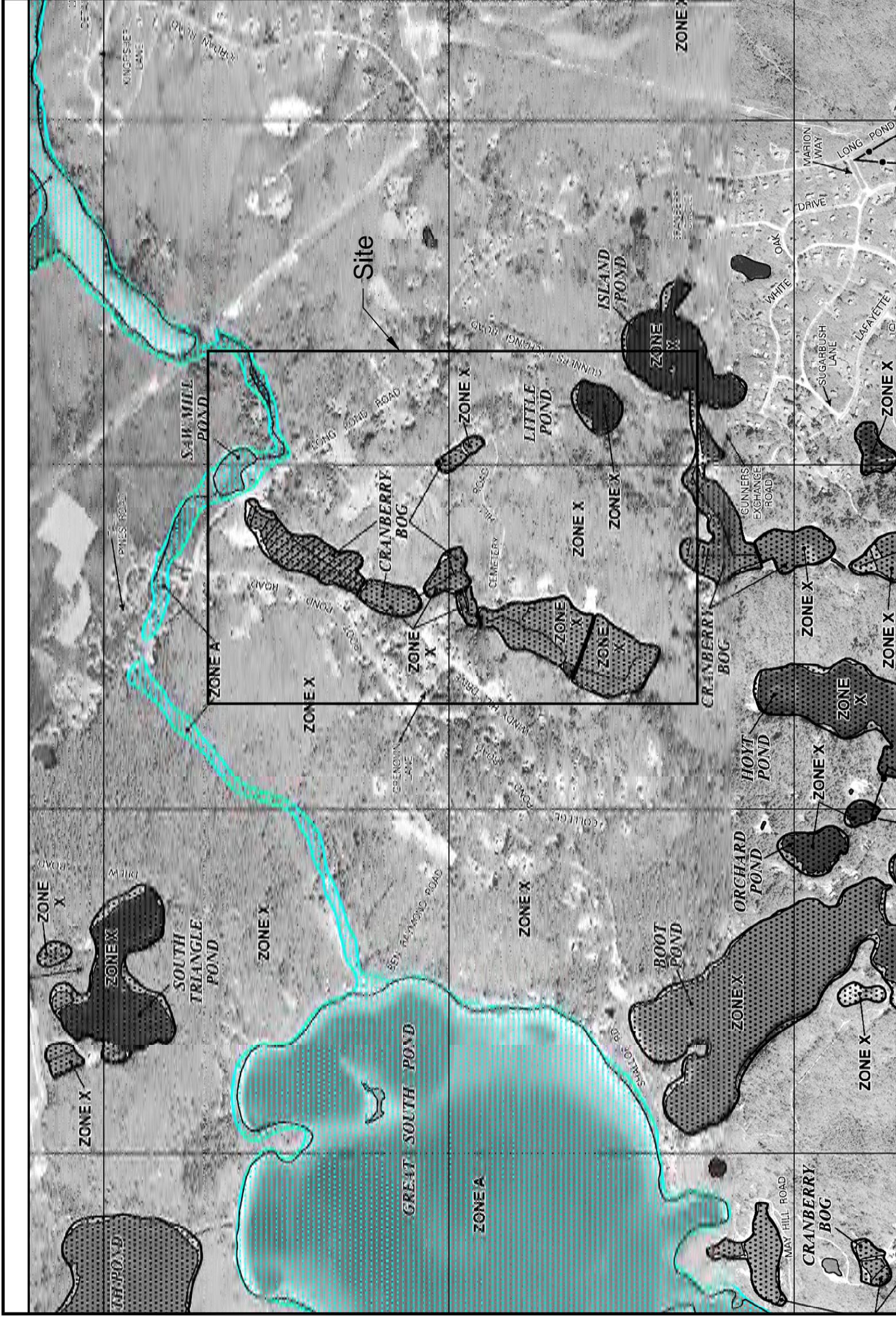


1857 Map of the Upper Eel River Watershed



1885 USGS Topographic Map





**LEGEND**

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual chance flood (100-year flood) also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, AV, V, and VE. The base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A** No Base Flood Elevations determined.

**ZONE AE** Base Flood Elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of abutment (in flooding, velocities also determined).

**ZONE AV** Special Flood Hazard Area formerly protected from the 1% annual chance flood by levees, dikes, or other flood control works, but which are no longer being maintained to provide protection from the 1% annual chance or greater flood.

**ZONE V** Area to be protected from 1% annual chance flood by a federal flood protection system under construction; no Base Flood Elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream, plus any adjacent floodplain area that must be flooded to accommodate the discharge of the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood are shown with a wavy line pattern. Areas of 1% annual chance flood are shown with a wavy line pattern. Areas of 1% annual chance flood are shown with a wavy line pattern.

**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 0095E**

**FIRM FLOOD INSURANCE RATE MAP**

TOWN OF PLYMOUTH, MASSACHUSETTS PLYMOUTH COUNTY

PANEL 95 OF 167

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

DATE: 12/19/2006

MAP NUMBER: 2502780095E

MAP REVISED: DECEMBER 19, 2006

Federal Emergency Management Agency

**Horsley Witten Group**  
Sustainable Environmental Solutions  
www.horsleywitten.com

**Eel River Restoration  
FEMA Flood Map  
Plymouth, MA**

02/14/08 TW Flood Map.dwg **Figure 3**

North

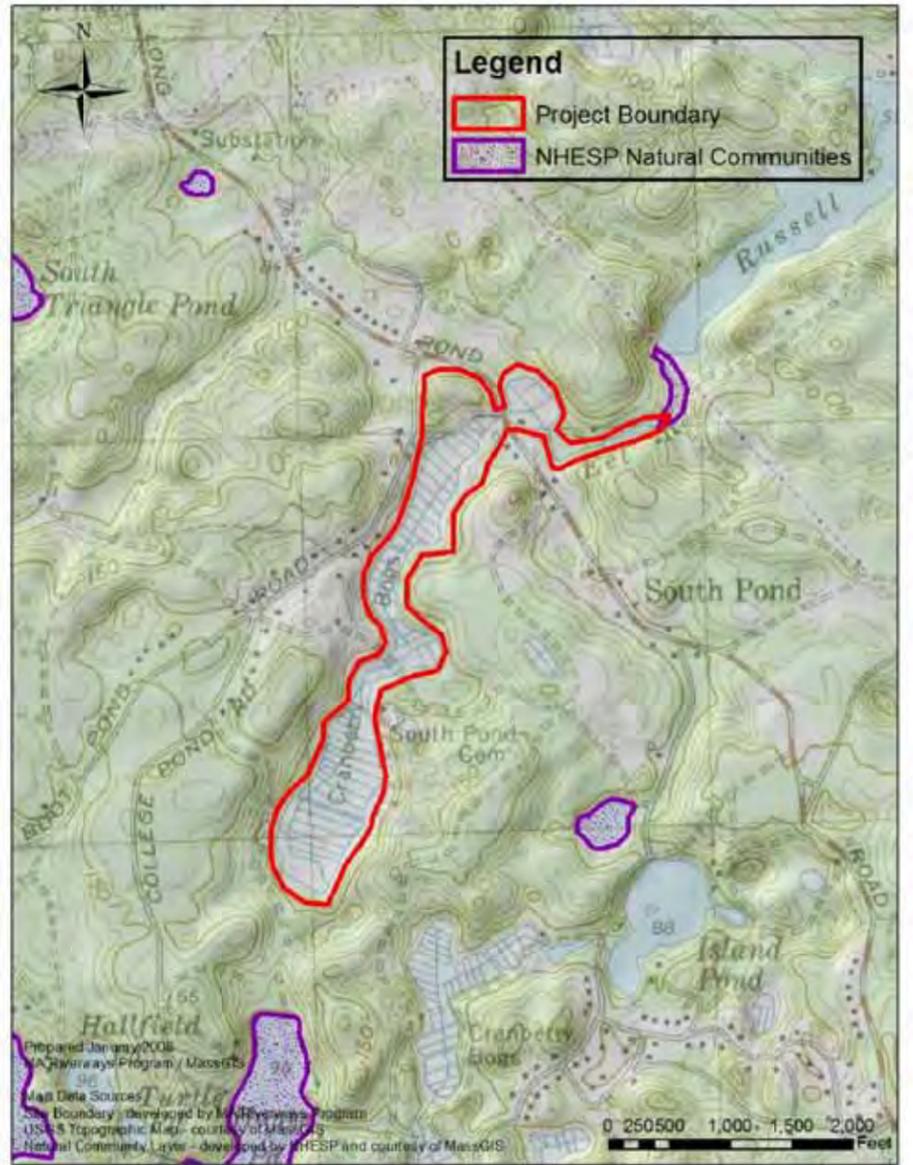
Scale in Feet

0 1000

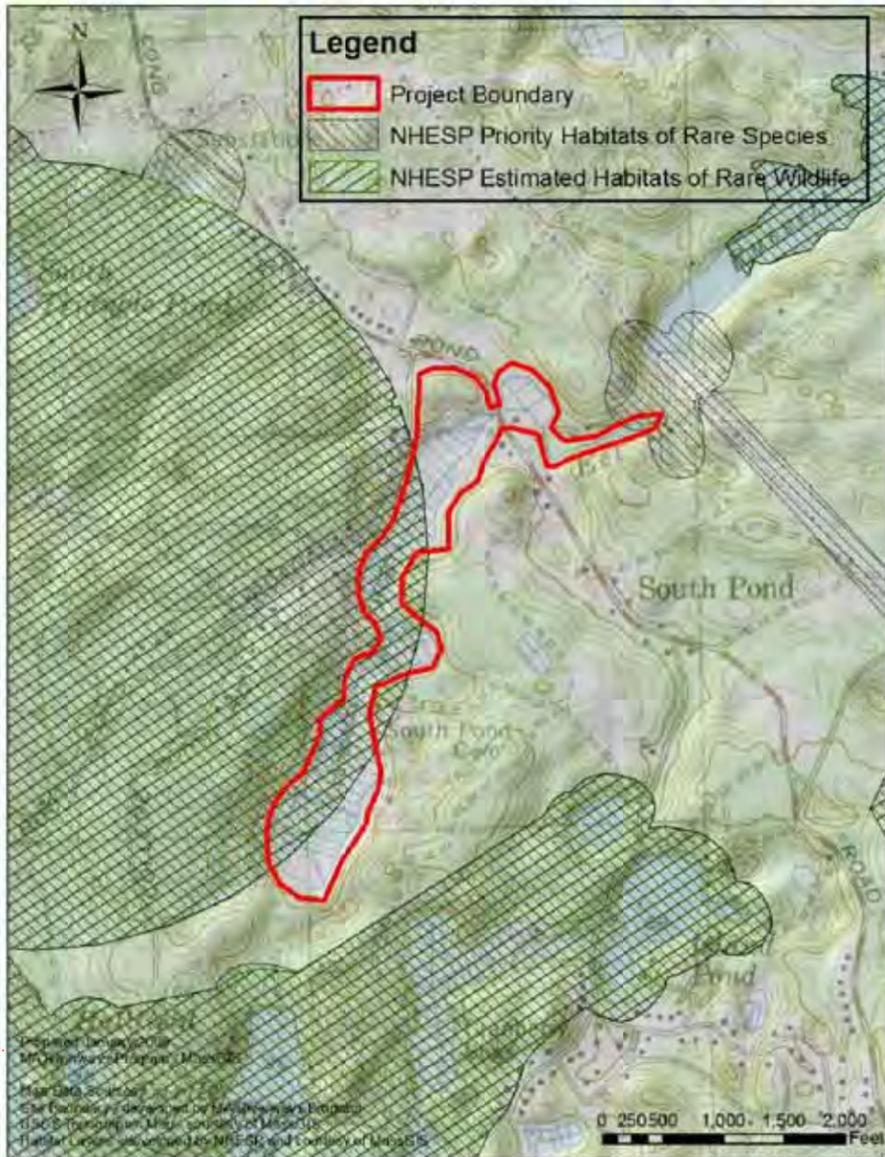
last modified: 02/14/08 printed: 05/12/09 by tw 1:1712 Eel River Headwaters RestDrawing.dwg/Flood Map.dwg



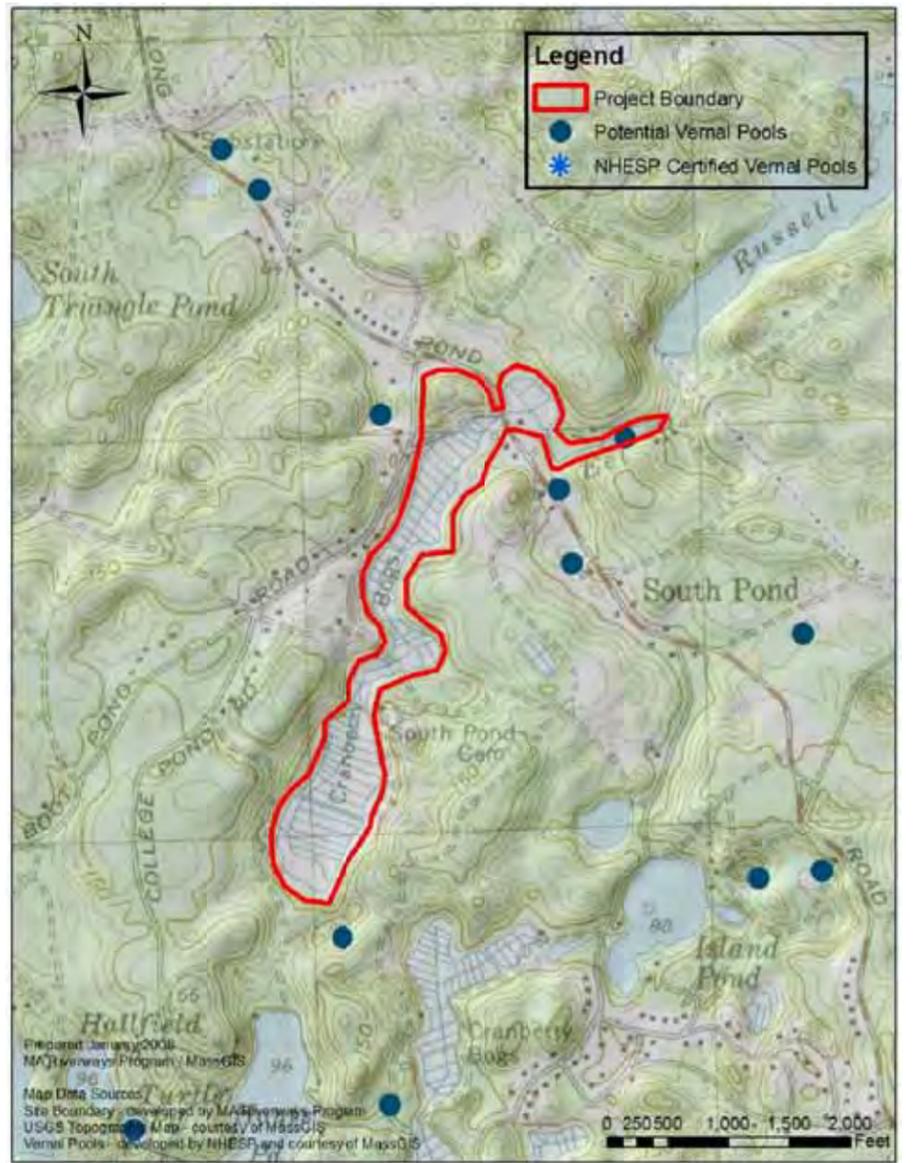
NHESP BioMap Supporting Natural Landscape & Core Habitat



NHESP Natural Communities



NHESP Priority Habitats of Rare Species & Estimated Habitats of Rare Wildlife



Potential & NHESP Certified Vernal Pools

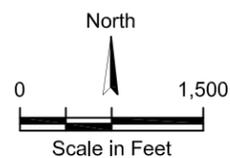
All Mapping Prepared on January 2008 by MA Riverways Program

Map Data Sources:

- Site Boundary Developed by MA Riverways Program.
- USGS Topographic Map Courtesy of MassGIS.
- Habitat Layers Developed by NHESP and Courtesy of MassGIS.

Horsley Witten Group  
Sustainable Environmental Solutions  
www.horsleywitten.com

Eel River Restoration  
NHESP Map  
Plymouth, MA





## APPENDIX A

---

Memorandum of Understanding  
between the  
United States Fish and Wildlife Service  
(Lead Federal Agency)  
and the  
United States Department of Agriculture  
Natural Resources Conservation Service  
(Cooperating Agency)

Memorandum of Understanding  
Between the  
United States Fish and Wildlife Service  
(Lead Federal Agency)  
And the  
United States Department of Agriculture  
Natural Resources Conservation Service  
(Cooperating Agency)

This Memorandum of Understanding (MOU) is established and entered into by and between the United States Fish and Wildlife Service (hereafter referred to as "USFWS") and the United States Department of Agriculture Natural Resources Conservation Service, (hereafter referred to as "NRCS"),

This MOU outlines the roles and responsibilities of the USFWS and the NRCS to assure compliance with the National Environmental Policy Act (NEPA) with respect to the preparation of an Environmental Assessment (EA) for the proposed Eel River Headwaters Restoration project in Plymouth, Massachusetts.

This MOU does not alter any other written MOUs, Cooperative or Grant Agreements between the above parties and the project sponsors or other government agencies, or parties.

**I. BACKGROUND:**

The proposed Eel River Headwaters Restoration Project is a collaborative effort among the USFWS, NRCS, Town of Plymouth, Massachusetts Office of Coastal Zone Management - Wetland Restoration Program, Massachusetts Riverways Program, American Rivers, The Nature Conservancy, Massachusetts Corporate Wetlands Restoration Partnership, and others to restore approximately 40 acres of retired cranberry bogs and approximately 9000 feet of channelized river to a mixed wetland complex and healthy coastal cold water-stream. The project is receiving funding and support from a strong partnership of local, state, federal, private and non-governmental organizations including USFWS funding from a National Coastal Wetlands Conservation Grant and NRCS funding from the Wetlands Restoration Program. Because of the federal actions involved, the Eel River Headwaters Restoration Project will require review under the NEPA. Due to their substantial funding contribution, the USFWS will serve as Lead Agency under NEPA, and the NRCS has agreed to be a Cooperating Agency under NEPA.

## **II. PURPOSE AND BENEFITS:**

The USFWS and NRCS have been working together on the on habitat restoration planning for the proposed project. By combining resource efforts for NEPA review of the Eel River Headwaters Restoration Project, interagency coordination and cooperation will be strengthened, and both agencies will improve efficiencies. Therefore, the USFWS and the NRCS deem it mutually advantageous to cooperate in the undertaking, and hereby agree as follows:

## **III. USFWS (Lead Federal Agency) RESPONSIBILITIES:**

- A.** As the Lead Agency, the USFWS has primary responsibility for meeting the requirements of the National Environmental Policy Act (NEPA), including the preparation of an EA for the proposed Eel River Headwaters Restoration project.
- B.** The USFWS will consult with the NRCS regarding the EA issues of concern, range of EA alternatives considered, and potential mitigation measures to be analyzed in the EA.
- C.** The USFWS will identify the NRCS as a Cooperating Agency in the EA, and will include in the EA written material which would allow the NRCS to meet its NEPA compliance requirements.
- D.** The USFWS will provide the NRCS with copies of the draft EA and, if applicable, the Finding of No Significant Impact (FONSI) in a timely manner.

## **IV. NRCS (Cooperating Agency) RESPONSIBILITIES:**

- A.** As a Cooperating Agency, the NRCS will continue to participate as a partner in the Eel River Headwaters Restoration Project.
- B.** The NRCS will review the draft EA and provide comments to the USFWS within 30 working days (unless a different mutually agreed upon time frame is established) of receipt of the draft EA.
- C.** The NRCS will review the draft FONSI, if applicable, and provide comments to the USFWS within 30 working days (unless a different mutually agreed upon time frame is established) of receipt of the draft FONSI.

**V. IT IS MUTUALLY AGREED THAT:**

**A.** The principle contacts for this MOU are:

**USFWS:**

Eric Derleth  
Partners for Fish and Wildlife Program  
New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301  
603-223-2541 x14

**NRCS:**

Beth Schreier  
Soil Conservationist  
451 West Street  
Amherst, MA 01002  
413 253-4393

**B.** This MOU may be modified by the parties hereto by mutual agreement only. Any modification will be in writing.

**C.** This MOU is terminated when either the FONSI is signed or when written notice is given by a respective agency.

**THE NPS AND THE NRCS AGREE TO THIS MOU AS OF THE LAST DATE WRITTEN BELOW:**

Date: 4/6/09

By: Michael Jamaral

for Thomas R. Chapman  
Field Supervisor, New England Field Office  
U. S. Fish and Wildlife Service  
70 Commercial Street  
Concord, NH 03301

Date: 3/27/09

By: Christine S. Clarke

Christine S. Clarke  
State Conservationist  
Natural Resources Conservation Service  
451 West Street  
Amherst, MA 01002



United States Department of Agriculture

Natural Resources Conservation Service  
451 West Street  
Amherst, MA 01002

413-253-4350  
fax 413-253-4375  
www.ma.nrcs.usda.gov

March 30, 2009

Eric Derleth  
Partners for Fish and Wildlife Program  
New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301

RE: Memorandum of Understanding – Eel River Headwaters Restoration Project

Dear Eric:

I am pleased to send you the Memorandum of Understanding between the United States Fish and Wildlife Service and the Natural Resources Conservation Service, signed by our State Conservationist, Chris Clarke. We look forward to receiving a final copy of the MOU signed by both agencies and appreciate the opportunity to work together on this ecological restoration project.

Please don't hesitate to contact me if you have any questions or need more information.

Sincerely,

A handwritten signature in blue ink that reads "Beth Schreier".

BETH SCHREIER  
Soil Conservationist

Enclosure

RECEIVED  
FISH & WILDLIFE SERVICE

APR - 2 2009

NEW ENGLAND FIELD OFFICE  
CONCORD, NH

## APPENDIX B

---

Excerpts from Eel River Restoration Site Plans  
prepared by Inter-Fluve, Inc. dated November 1, 2007

# EEL RIVER RESTORATION

November 1, 2007



MASSACHUSETTS STATE MAP  
NOT TO SCALE

## INDEX

SHEET	DESCRIPTION
1	Site Map and Sheet Index
2	Access & Staging Bogs 4-7 Sequencing
3	Access & Staging Bogs 1-3 Sequencing
4	Dewatering Information
5	Wetland Boundaries
6-12	Plan/Profile
13	Channel Cross Section
14	Other Cross Sections
15	Riffle Transition Bogs 4 and 5
16	Riffle Transition Bogs 2 and 3
17	Long Pond Road Crossing
18	Bank Details
19	LWD Typicals
20	Bog 1 Detail Sheet
21	FES Installation and Staking
22	FES Lift Installation
23	General Notes
24	Planting Plan Bog 6-7
25	Planting Plan Bog 3-5
26	Planting Plan Bog 2
27	Planting Plan Bog 1
28	Cut and Fill Plan View Bog 4-7
29	Cut and Fill Plan View Bog 1-3
BR1	Culvert: General notes
BR2	Culvert: Long Pond Road Existing Conditions
BR3	Culvert: TNC Driveway Existing Conditions
BR4	Culvert: Long Pond Rd. Gen. Plan and Typ. Section
BR5	Culvert: Long Pond Road Phasing Plan
BR6	Culvert: Long Pond Road Phasing Cross Sections
BR7	Culvert: TNC Driveway General Plan
BR8	Culvert: Roadway Profiles
BR9	Culvert: Long Pond Road Box Elevation Plan
BR10	Culvert: Long Pond Road Box Section Plan
BR11	Culvert: TNC Driveway Box Elevation Plan
BR12	Culvert: TNC Driveway Box Section Plan
BR13	Culvert: Boring Log



SITE MAP

NO.	BY	DATE	REVISION	DESCRIPTION

RP.GO	MJM	MJM
DRAWN	DESIGNED	CHECKED
MM	11/1/07	
APPROVED	DATE	PROJECT

Eel River Restoration  
Town of Plymouth, MA



3602 Atwood Ave, Suite 3  
Madison, WI 53714  
608.441.0342  
www.interfluve.com

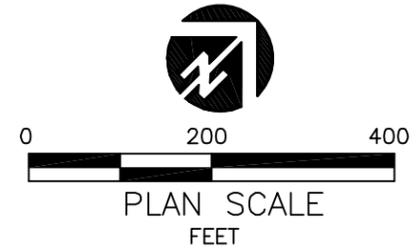
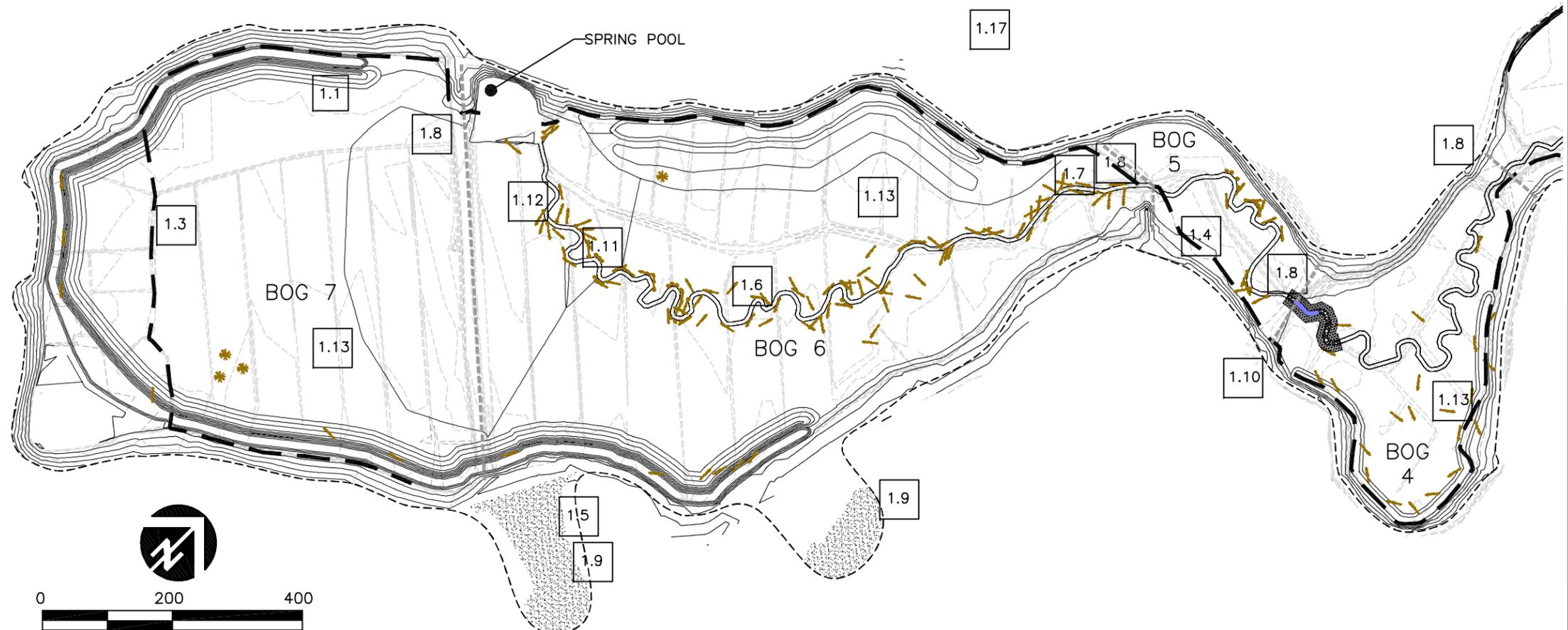


Site Map and  
Sheet Index

SHEET  
1 OF 29

# SUGGESTED GENERAL CONSTRUCTION SEQUENCING FOR BOGS 4, 5, 6 AND 7

- 1.1 INSTALL SILT FENCE ALONG DEWATERING CHANNEL AND SPRING POOL/FILL INTERFACE AREAS
- 1.2 INSTALL TEMPORARY ACCESS ROADS AS NECESSARY
- 1.3 CONSTRUCT DEWATERING CHANNEL, DIRECT FLOW
- 1.4 EXCAVATE SAND IN BOG 5
- 1.5 STOCKPILE SPOILS FROM EXCAVATED BOG 5 IN LOCATIONS SHOWN
- 1.6 CONSTRUCT NEW CHANNEL WITH LWD THROUGH BOGS 4, 5, AND 6
- 1.7 INSTALL TEMPORARY CONSTRUCTION CROSSING IN NEW CHANNEL
- 1.8 REMOVE BERMS BETWEEN BOGS 6/7, 5/6, 4/5, AND 3/4
- 1.9 STOCKPILE SPOILS FROM EXCAVATED BERMS IN LOCATIONS SHOWN
- 1.10 CONSTRUCT RIFFLE AT BOGS 4 AND 5 TRANSITION
- 1.11 PLACE SILT FENCE ALONG NEW CHANNEL WHERE FLOODPLAIN EXCAVATION WILL OCCUR
- 1.12 ACTIVATE FLOW TO NEW CHANNEL
- 1.13 FINAL GRADE WETLAND AND CONSTRUCT SEEPAGE RESERVOIRS
- 1.14 RESTORE REMAINING DISTURBED AREAS TO FINAL CONDITION
- 1.15 REMOVE REMAINING EROSION CONTROL MEASURES
- 1.16 INSTALL PLANTS
- 1.17 CHECK PROJECT SITE AFTER 7 DAYS OF NEW CHANNEL BEING ONLINE BEFORE WORK BEGINS DOWNSTREAM, ADJUST GRADE CONTROL IF NECESSARY



PLAN VIEW: BOGS 4-5-6-7

## PLAN LEGEND

- - - - - EXISTING 1 FT CONTOUR
- [Stippled Area] SAND PIT/STOCKPILE AREA
- ===== PROPOSED 1 FT CONTOUR
- [Yellow Line with Dashes] LOG OR ROOT WAD
- - - - - DISTURBANCE LIMITS
- [\*] STUMP
- - - - - DEWATERING CHANNEL
- [\*] RAPTOR PERCH
- [Cross-hatched Area] FABRIC ENCAPSULATED SOIL
- - - - - DELINIATION OF BOGS

SEE DEWATERING NOTES FOR ADDITIONAL INFORMATION

NO.	BY	DATE	REVISION DESCRIPTION

RP_GO	MJM	MJM
DRAWN	DESIGNED	CHECKED
MM	11/1/07	
APPROVED	DATE	PROJECT

*Eel River Restoration*  
Town of Plymouth, MA



3602 Atwood Ave, Suite 3  
Madison, WI 53714  
608.441.0342  
www.interfluve.com

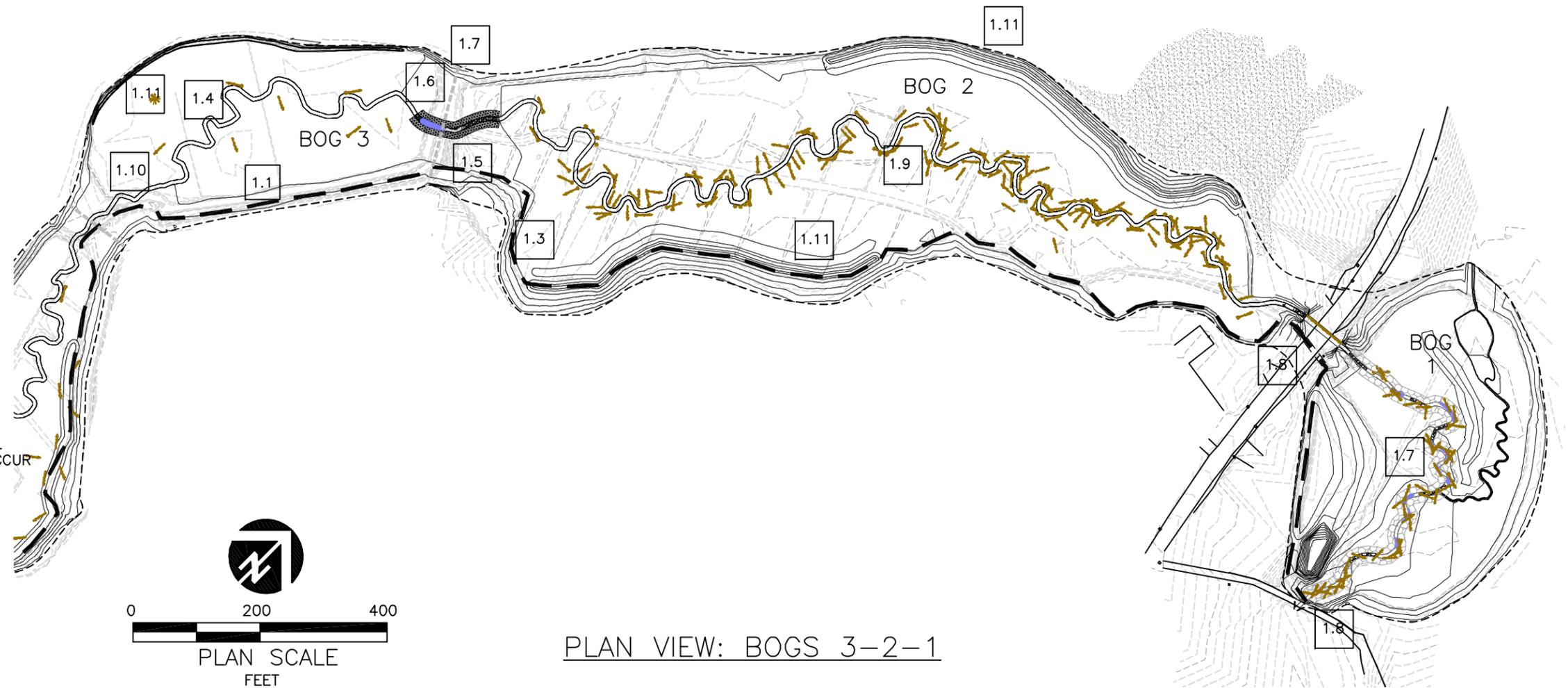


**UNDERWOOD & ASSOCIATES**  
LANDSCAPE ARCHITECTURE DESIGN BUILD ECOLOGICAL RESTORATION  
1753 EBLING TRAIL  
ANNAPOLIS, MARYLAND 21401  
Telephone: 410) 849-3211 Fax: 410) 849-2136

Access & Staging  
Bogs 4-7 Sequencing

# SUGGESTED GENERAL CONSTRUCTION SEQUENCING FOR BOGS 1, 2, AND 3

- 1.1 INSTALL SILT FENCE ALONG DEWATERING CHANNEL/FILL INTERFACE AREAS
- 1.2 INSTALL TEMPORARY ACCESS ROADS AS NECESSARY
- 1.3 CONSTRUCT DEWATERING CHANNEL
- 1.4 CONSTRUCT NEW CHANNEL WITH LWD THROUGH BOGS 1, 2, AND 3
- 1.5 INSTALL TEMPORARY CONSTRUCTION CROSSING IN NEW CHANNEL
- 1.6 REMOVE BERM BETWEEN BOGS 3/2
- 1.7 BUILD RIFFLES AT BOGS 2 AND 3 TRANSITION, AND WITHIN BOG 1
- 1.8 CONSTRUCT NEW CROSSINGS AT LONG POND ROAD AND PRIVATE DRIVEWAY
- 1.9 PLACE SILT FENCE ALONG NEW CHANNEL WHERE FLOODPLAIN EXCAVATION WILL OCCUR
- 1.10 ACTIVATE FLOW TO NEW CHANNEL
- 1.11 CONSTRUCT SEEPAGE RESERVOIRS
- 1.12 RESTORE REMAINING DISTURBED AREAS TO FINAL CONDITION
- 1.13 INSTALL PLANTS
- 1.14 REMOVE REMAINING EROSION CONTROL MEASURES



## PLAN LEGEND

- |                         |                          |                        |                                 |
|-------------------------|--------------------------|------------------------|---------------------------------|
| --- (dashed line)       | EXISTING 1 FT CONTOUR    | [Stippled pattern]     | SAND PIT                        |
| — (solid line)          | PROPOSED 1 FT CONTOUR    | [Yellow line with wad] | LOG OR ROOT WAD                 |
| - - - (dashed line)     | DISTURBANCE LIMITS       | [Yellow star]          | STUMP                           |
| — (thick dashed line)   | DEWATERING CHANNEL       | [Yellow star with dot] | RAPTOR PERCH                    |
| [Cross-hatched pattern] | FABRIC ENCAPSULATED SOIL | [Hexagonal pattern]    | GRADING AND SHAPING WITH FABRIC |
| --- (dotted line)       | DELINIATION OF BOGS      |                        |                                 |

NO.	BY	DATE	REVISION DESCRIPTION

RP_GO	MJM	MJM
DRAWN	DESIGNED	CHECKED
MM	11/1/07	
APPROVED	DATE	PROJECT

Eel River Restoration  
Town of Plymouth, MA



3602 Atwood Ave, Suite 3  
Madison, WI 53714  
608.441.0342  
www.interfluve.com

**UNDERWOOD & ASSOCIATES**  
LANDSCAPE ARCHITECTURE DESIGN BUILD ECOLOGICAL RESTORATION  
1753 EBLING TRAIL  
ANNAPOLIS, MARYLAND 21401  
Telephone: 410) 848-3211 Fax: 410) 848-2136

Access & Staging  
Bogs 1-3 Sequencing

SHEET  
3 of 29

# EEL RIVER SAWMILL DAM

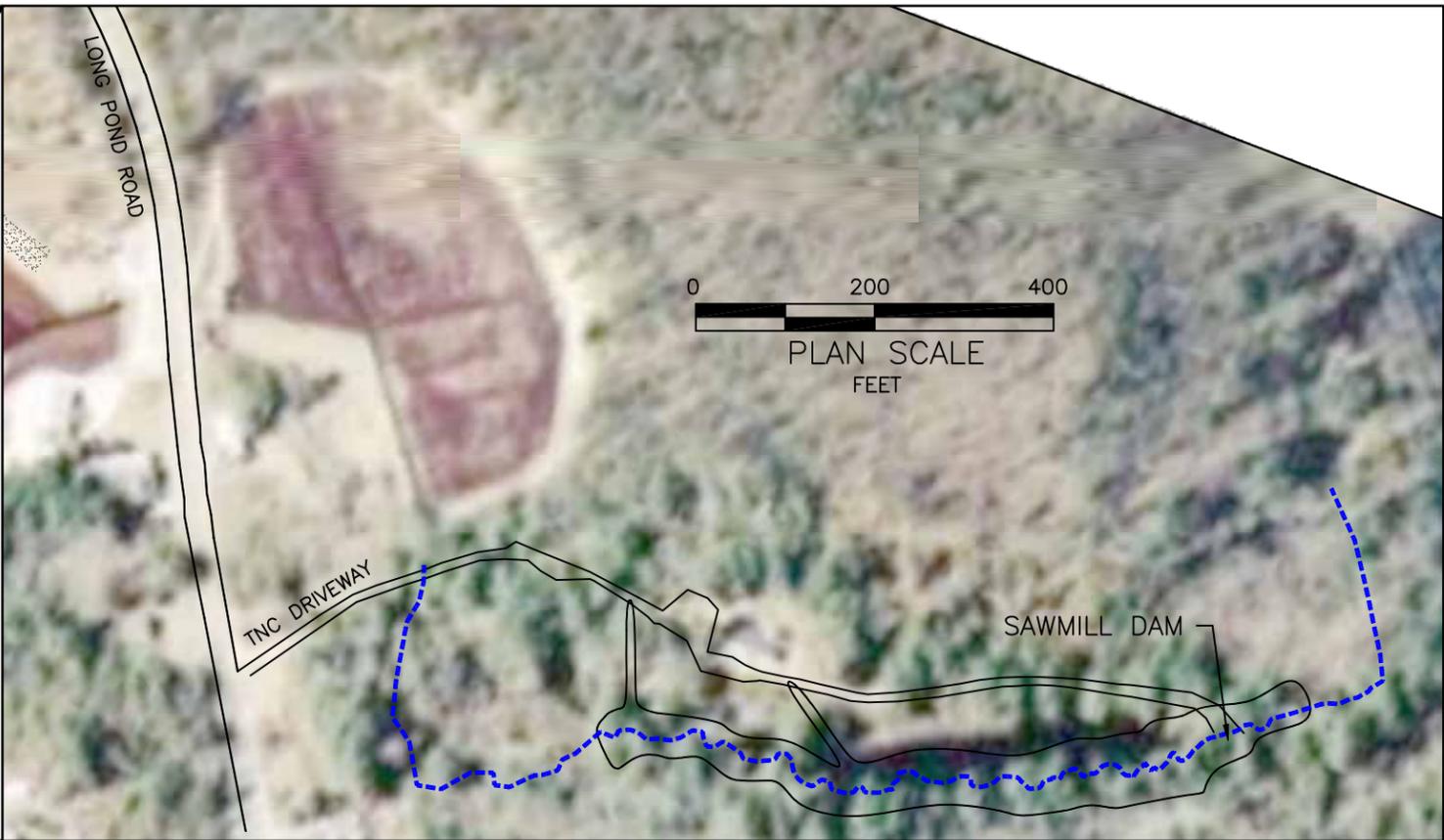
January 8, 2009



MASSACHUSETTS STATE MAP  
NOT TO SCALE



TOWN OF PLYMOUTH MAP  
NOT TO SCALE



SITE MAP

INDEX

SHEET	DESCRIPTION
1	Site Map and Sheet Index
2	Access & Staging
3	Subgrade Plan & Profile
4	Channel Construction Plan & Profile
5	Channel Cross Section
6	Channel Details
7	Channel Details
8	FES Lift Details
9	FES Installation and Staking
10	FES Installation
11	General Notes
12	Planting Plan and Wetland Boundaries

Z:\Projects\_Working\Eel River - Sawmill Dam\8 - Drawings\EEL\_RIVER\_2009\_010809.dwg

NO.	BY	DATE	REVISION DESCRIPTION

GSO	MJM, MM	MJM
DRAWN	DESIGNED	CHECKED
MM	01/08/09	08-02-21
APPROVED	DATE	PROJECT

Sawmill Dam  
Eel River  
Town of Plymouth, MA



3602 Atwood Avenue Suite 3  
Madison, WI 53714  
608.441.0342  
www.interfluve.com

Site Map and  
Sheet Index

SHEET  
1 of 12

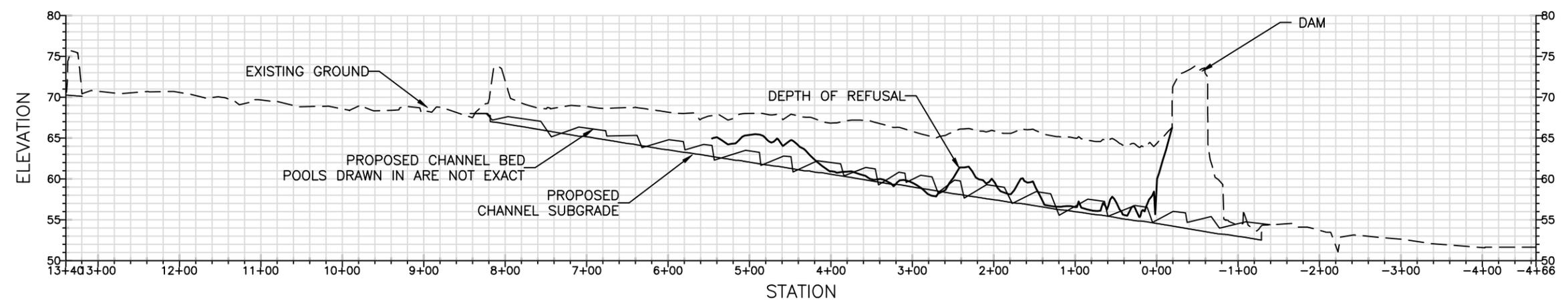
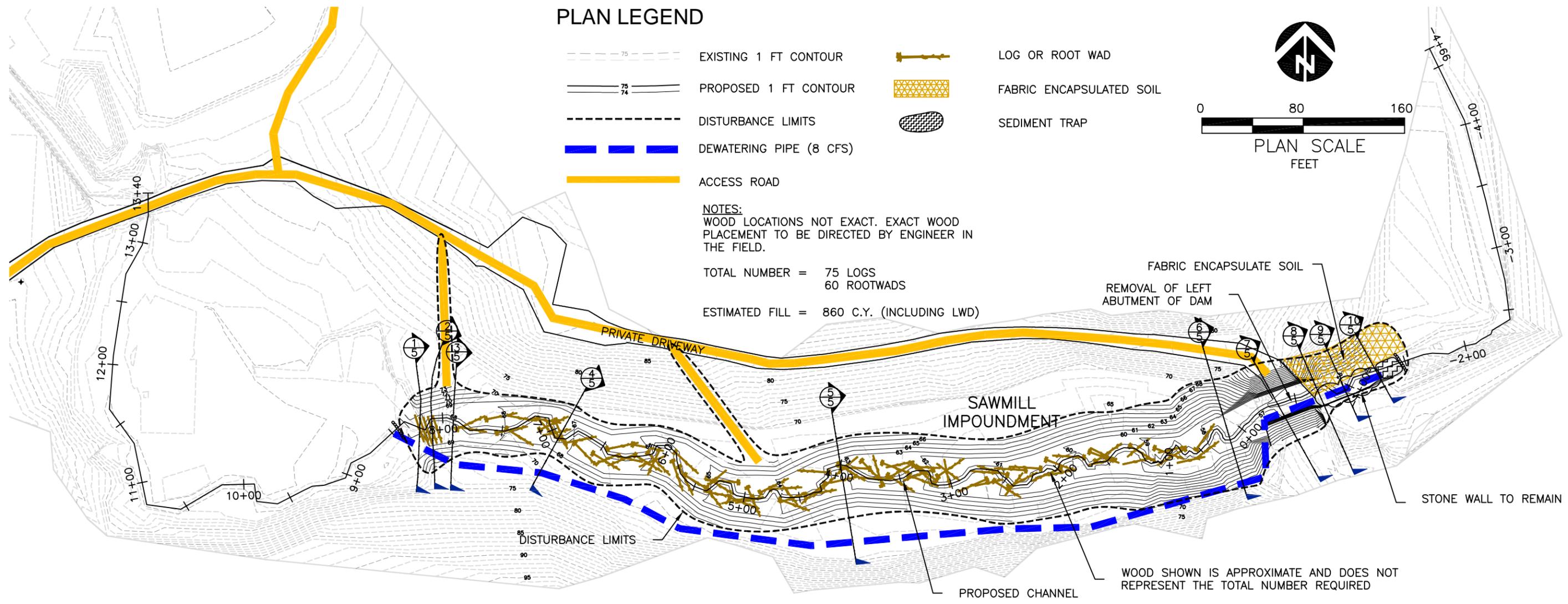
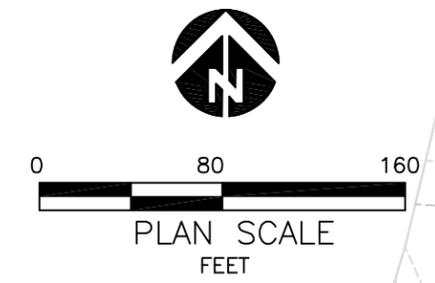
Z:\Projects\_Working\Eel River - Sawmill Dam\8 - Drawings\EEL\_RIVER\_2009\_010809.dwg

### PLAN LEGEND

- EXISTING 1 FT CONTOUR
- PROPOSED 1 FT CONTOUR
- DISTURBANCE LIMITS
- DEWATERING PIPE (8 CFS)
- ACCESS ROAD
- LOG OR ROOT WAD
- FABRIC ENCAPSULATED SOIL
- SEDIMENT TRAP

**NOTES:**  
WOOD LOCATIONS NOT EXACT. EXACT WOOD PLACEMENT TO BE DIRECTED BY ENGINEER IN THE FIELD.

TOTAL NUMBER = 75 LOGS  
60 ROOTWADS  
ESTIMATED FILL = 860 C.Y. (INCLUDING LWD)



NO.	BY	DATE	REVISION DESCRIPTION

GSO	MJM, MM	MJM
DRAWN	DESIGNED	CHECKED
MM	01/08/09	08-02-21
APPROVED	DATE	PROJECT

Sawmill Dam  
Eel River  
Town of Plymouth, MA

3602 Atwood Avenue Suite 3  
Madison, WI 53714  
608.441.0342  
www.interfluve.com

Channel Construction  
Plan and Profile

## APPENDIX C

---

Intra-Service Section 7 Biological Evaluation  
prepared by U.S. Fish and Wildlife Service

## INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION

**Originating Person:** Eric L. Derleth, NH/MA/RI Coordinator  
Partners for Fish and Wildlife Program

**Telephone Number:** (603) 223-2541 x14

**Date:** April 10, 2009

### I. Service Program and Proposed Activity:

**Partners for Fish and Wildlife Program and National Coastal Wetland Conservation Grant Program.** The Eel River Headwaters Restoration Project is a proposed collaborative interagency effort led by the Town of Plymouth, MA; US Fish and Wildlife Service; MA Wetlands Restoration Program; MA Riverways Program; and others to improve the water quality and habitat in the river and the receiving waters of Plymouth Harbor. Major elements of the restoration project include: dam reconfiguration to restore fish passage; modification of a channelized river system to restore approximately 9,000 linear feet of natural stream and fish habitat (including restoration of channel sinuosity and incorporation of large woody material in the river channel); 36 acres of former commercial cranberry bog to be restored to a mix of forested wetland, scrub-shrub wetland, and emergent marsh to approximate natural conditions; native vegetation plantings; and an overall improvement to watershed hydrology.

### II. Pertinent Species within the Area

The red-bellied cooter is not known to occur in the project area (MA NHESP File No. 03-12953, March 29, 2009 letter). The nearest known pond that supports a population of endangered cooters is Hoyts-Gunners Exchange Pond, a distance of approximately 0.24 miles from the nearest point of activity within the project area. Red-bellied cooters are primarily aquatic and do not exhibit a propensity to wander long distances over land, like some other freshwater *Chelonia*. Female red-bellied cooters usually nest in sandy habitats within 90 meters of their resident pond.

The Eel River Headwaters Restoration Project, while not directly impacting coastal pond or adjacent sandy nesting habitats, is partially within the critical habitat designated for this turtle in 1980, concurrent with the listing of the species (65 FR 21828).

### III. Station Name and Action:

Station: New England Field Office, Concord, NH

Action: Funding of the Eel River Restoration Project through the Partners for Fish and Wildlife Program and National Coastal Wetland Conservation Grant Program.

#### **IV. Location**

Includes an area starting approximately 7800 feet southwest (upstream) of Long Pond Road (within Critical Habitat) to approximately 2100 feet northeast (downstream) of Long Pond Road (not within Critical Habitat), Eel River Headwaters, Plymouth County, Plymouth, Massachusetts.

#### **V. Determination of Effects**

##### **A. Explanation of effects of action on species and critical habitats listed in II**

No direct effects are anticipated to the red-bellied cooter because individuals and populations are not known to occur in the project area. In regard to critical habitat, the primary constituent elements, i.e., those physical or biological features essential to the conservation of the species within its critical habitat are not described explicitly in 65 FR 21828. However, it is apparent that they include fresh water ponds and associated sites used by cooters for basking, nesting and overwintering. Actions cited in 65 FR 21828 that would adversely modify critical habitat include significant alteration of water levels in occupied ponds, through groundwater pumping, or reduction in water quality that would reduce or eliminate vegetation and aquatic prey items for the turtle. Other actions cited in 65 FR 21828 that would adversely modify critical habitat include the draining of wetlands, shoreline development, and the filling and dredging of fresh water pond beaches. Actions are proposed that will alter the present condition and distribution of aquatic and terrestrial habitats within that portion of the project area that occurs within the critical habitat designation; however the activity will be of a restorative nature with the intent to return the Eel River watershed to a more natural, pre-agricultural condition. A summary of these actions are as follows:

Major elements of the restoration project include: dam reconfiguration to restore fish passage (primarily for American eel, state-listed bridle shiner, and coldwater resident species); 9,000 linear feet of natural stream and fish habitat restoration (including restoration of channel sinuosity and incorporation of large woody material in the river channel and on the restored bog surface); 36 acres of former commercial cranberry bog to be restored to a mix of sphagnum-dominated forested wetland (Atlantic White Cedar and Red Maple Swamp), scrub-shrub wetland (Acidic Shrub Fen), and emergent marsh (Acidic Graminoid Fen) to approximate natural conditions; native vegetation plantings; restoration of former upland sand borrow areas to upland forested habitat, and an overall improvement to watershed hydrology.

The effect of these proposed actions, individually and cumulatively, will be to restore a 1.7 mile portion of the Eel River channel and approximately 40 acres of adjacent riparian (36 acres – wetland, 4 acres – upland) habitat to a more natural, pre-agricultural condition (details provided in the Eel River Headwaters Restoration Project, Notice of Intent, submitted to Plymouth Conservation Commission, Plymouth, MA, February 25, 2009). Improvements to the riverine system include the restoration of 800 feet of river channel habitat through the removal (or

reconfiguration) of the Glendale Mill Dam and the restoration of approximately 8,100 feet of river channel by increasing channel sinuosity, restoration of natural bed features (riffles, runs, pools), and incorporation of large woody material in the river channel. These riverine restoration elements of the project will improve general water quality and habitat conditions of the Eel River and directly improve the potential for cooters to move and disperse throughout the Eel River watershed and, if utilized, will improve the basking habitat within the river channel.

Improvements to the palustrine wetland system include restoring wetland hydrology in the former cranberry bogs by raising groundwater elevations, removal of the sand berms that separate the 7 former commercial cranberry bog units, the restoration of surficial micro-topography, and the planting of native hydrophytic vegetation in the restored wetland. The resulting restored palustrine habitat will be a mix of Atlantic White Cedar Swamp, Red Maple Swamp, Acid Shrub Fen, and Acidic Graminoid Fen.

Improvements to the upland habitat will be achieved through the filling, recontouring, and planting of the former commercial cranberry bog sand borrow areas with drought-tolerant native upland vegetation. Additional upland nesting habitat enhancement for the state-listed Eastern Box Turtle will follow an approved Protection and Habitat Enhancement Plan developed for the MA Natural Heritage and Endangered Species Program. Specific components of that plan include the planting of native vegetation and nesting habitat improvement through the creation of or expansion of open sandy areas outside the proposed limit of work. The upland restoration actions will not affect cooter nesting habitat as all upland sites are greater than 400 meters from the nearest coastal pond breeding population and are not known to be utilized by the species.

Although this project was not designed to specifically restore and enhance cooter habitat, it will provide a suite of habitats with improved value for the species, should they occur in the Eel River project area in the future.

## **B. Explanations of actions to be implemented to reduce adverse effects.**

In addition to the habitat improvement components of Eastern Box Turtle Protection and Habitat Enhancement Plan developed for the MA Natural Heritage and Endangered Species Program, the Plan includes the installation and biweekly inspection of temporary turtle barriers and daily turtle surveys to be conducted during project construction and, if found, the translocation of individuals to appropriate habitat away from the construction area. While these actions are specific to the state-listed Eastern Box Turtle, they should also prevent any dispersing northern red-bellied cooters from being adversely impacted by the proposed project. In the unlikely event that cooters are found during the turtle surveys these individuals will also be relocated, in consultation with the MA NHESP, to appropriate habitat nearby.

## **VI. Effect Determination and Response Requested**

A. Listed Species Determination: This project is not likely to adversely affect the red-

bellied cooter or adversely modify critical habitat. The project will result in an improvement to the water quality, terrestrial and aquatic habitat diversity and hydrology of the Eel River watershed, and thus will be beneficial to the cooter if they occur in the project area in the future.

B. Response Requested: None required

**VII. Reviewing Ecological Services Office Evaluation**

A. Concurrence: Concur *mja*

B. Formal Consultation Required: No

C. Conference Required: No

D. Nonconcurrency : N/A

Remarks:

*Eric L. DeLoth*  
*NH/MA/RE PFW Coordinator*  
Originating Official and Title

*4/10/09*  
Date

*Michael J Amaral*  
*Acting Supervisor, NEFO*  
Reviewing Official and Title *USFWS*

*4/10/09*  
Date

## APPENDIX D

---

Eastern Box Turtle (*Terrapene carolina*) Protection and Habitat Enhancement Plan  
prepared by LEC Environmental Consultants, Inc.

## Eastern Box Turtle (*Terrapene carolina*) Protection and Habitat Enhancement Plan

### **Bog #'s 1-7**

1. Prior to April 1<sup>st</sup>, 2009, the entire perimeter of the cranberry bog system (Bog #'s 1-7), located within the surrounding forested treeline, will be mowed to a blade height of less than 4 inches.
2. Daily and prior to work and between April 1<sup>st</sup> and October 31<sup>st</sup> (2009), NHESP-approved personnel will search the perimeter of the bogs to be worked on for that particular day to locate any Eastern Box Turtles.
  - a) LEC Staff will train project team personnel as to standard Eastern Box Turtle search methodologies for NHESP-approval. As part of the search training, LEC will provide project team personnel with NHESP's Fact Sheet of the Eastern Box Turtle and additional reference photographs.
  - b) NHESP-approved personnel must obtain a Scientific Collecting Permit prior to conducting turtle searches. All state-listed species encountered shall be reported to the NHESP through a Rare Animal Observation Report (with photographs) within 10 days of the observation.
  - c) Any Eastern Box Turtle(s) found will be relocated in appropriate on-site forested upland habitat conditions near, but well outside of the proposed work footprint. Turtles will be relocated at least 20-feet within forested treeline.

### **Borrow Pit #1**

3. Prior to April 1<sup>st</sup>, 2009, temporary turtle barriers will be installed surrounding Borrow Pit #1 as depicted on Figure 1 (dated 11-6-08).

#### Temporary Turtle Barriers\*

- a) Installation of the temporary turtle barriers, to be comprised of entrenched silt fencing, must be conducted so as to minimize vegetation disturbance. It is not appropriate to clear large access paths prior to sweeps for turtle. No clearing may occur outside the Limit of Work within the surrounding forested upland area, unless otherwise approved by NHESP.
- b) The bottom of the silt fencing must be carefully buried in a 4-6 inch deep trench. The trench must be backfilled and compacted.

- c) As depicted on Figure 1, the terminal points of the silt fencing will be flared out at angles to facilitate potential movement away from the temporary work activities and/or Long Pond Road.
- d) The temporary turtle barriers shall be maintained in good condition throughout the construction period, and repaired as necessary. Materials to repair the barriers (i.e., additional silt fencing and stakes) shall be stockpiled on site and be accessible to all persons.
- e) A full length check of the turtle barrier shall be conducted by a person familiar with siltation barrier maintenance at least once every two weeks between April 1<sup>st</sup> and October 31<sup>st</sup> of each year to ensure that barriers prevent turtles from entering Borrow Pit #1 (primary staging area).
- f) As soon as the Borrow Pit has been regraded, replanted, and stabilized (described below), the silt fencing must be removed, as silt fencing can be barriers to wildlife movement.

\*If modifications to the temporary turtle barriers are proposed (e.g., full enclosure with turtle gates), the proposed measures must be submitted to NHESP for written approval.

Nesting Habitat Enhancement Area(s)

- g) Within the "Proposed Nesting Habitat Enhancement Area #1" as depicted on Figure 1 and prior to May 15<sup>th</sup> (2009), LEC personnel will selectively remove trees, saplings, shrubs, and/or groundcover by hand in order to enhance existing open sandy areas to function as potential Eastern Box Turtle Nesting Habitat located outside the Limit of Work. Soil material may be raked by hand to provide a loose, unconsolidated substrate, ideal for nesting (if necessary). This will enable areas outside the Limit of Work to viably function as potential Nesting Habitat in the immediate vicinity as temporary work activities continue within and proximate to Borrow Pit #1. Considering the nature of the habitat enhancement work, turtle searches are not necessary.
- h) Excess sand and peat excavated during the restoration activities will be placed within the three on-site Borrow Pits, including Borrow Pit #1. Peat will be buried beneath a variable layer of sand that is a minimum of 3 feet deep. The area will be regraded to create a combination of both flat areas and small hummocks to exploit full southern (sunlight) exposure. Following completion of work activities, the temporary work area will be replanted as conceptually depicted on the *Turtle Habitat Enhancement Plan (Borrow Pit #1)*, dated November 6, 2008. Groundcover will be comprised of non-

spreading bunches grasses, consisting of switch grass (*Panicum virgatum* var. *spissum*), little bluestem (*Schizachyrium scoparium*), and broom sedge bluestem (*Andropogon virginicus*) plugs. These species were selected due to their drought tolerance, specific foliage density, and their suitability for sustainable growth within a wide range of soil conditions, including sandy, nutrient poor soils. Furthermore, clusters of highbush blueberry (*Vaccinium corymbosum*), bayberry (*Myrica pensylvanica*), beach plum (*Prunus maritima*), and sweet fern (*Comptonia peregrina*) will be intermittently planted to provide immediate escape cover for gravid females and hatchlings once they emerge from a nest. The native woody shrubs and herbaceous vegetation should provide a 50% openness ratio (aerial coverage) of sandy soil conditions for nesting and adequate sunlight penetration necessary for nest incubation.

**Borrow Pit #'s 2 & 3**

4. Prior to April 1<sup>st</sup>, 2009, temporary turtle barriers will be installed surrounding Borrow Pit #'s 2 & 3 as depicted on Figure 2 (dated 11-6-08). The barriers will be comprised of continuous, properly toed-in (i.e. buried 4-6" below ground) silt fencing to prevent any Eastern Box Turtles from entering the work zone. The installation of the silt fencing shall adhere to the previously-detailed criteria (Section 3.a-f). As depicted on Figure 2, the silt fence barriers will extend flush to the existing concrete foundation containing vertical concrete walls, thus providing a continuous vertical barrier. Additionally, the terminal points of the silt fencing will be flared out at angles to facilitate potential movement away from the temporary work activities.

Nesting Habitat Enhancement Area(s)

- a) Within the "Proposed Nesting Habitat Enhancement Area #2" as depicted on Figure 2 and prior to April 1<sup>st</sup> (2009), the area will be mowed and roto-tilled. A small tractor with a York rake may be used to till/turnover the soil material to provide a loose, unconsolidated substrate of sand/sandy loam, ideal for nesting (if necessary). This will enable areas outside the Limit of Work to viably function as potential Nesting Habitat in the immediate vicinity as temporary work activities continue within and proximate to Borrow Pit #2.
- b) Within the "Proposed Nesting Habitat Enhancement Area #3 and #4" as depicted on Figure 2 and prior to May 15<sup>th</sup> (2009), LEC personnel will selectively remove trees, saplings, shrubs, and/or groundcover by hand in order to enhance existing open sandy areas to function as potential Eastern Box Turtle Nesting Habitat located outside the Limit of Work. Soil material

may be raked by hand to provide a loose, unconsolidated substrate of sand/sandy loam, ideal for nesting (if necessary). This will enable areas outside the Limit of Work to viably function as potential Nesting Habitat in the immediate vicinity as temporary work activities continue within and proximate to Borrow Pit #3 and west of Bog #7 (contiguous with larger undeveloped forested habitat areas), respectively. Considering the nature of the habitat enhancement work, turtle searches are not necessary.

- d) Restoration and enhancement of Borrow Pit #'s 2 & 3 will follow the methodologies outlined in Section 3.h), as described above. Following completion of the regrading activities, the Borrow Pits will be replanted as conceptually depicted on the *Turtle Habitat Enhancement Plan (Borrow Pit #2)* and *Turtle Habitat Enhancement Plan (Borrow Pit #3)*, both dated November 6, 2008.

**Long-Term Habitat Management Plan**

- 5. The bunched grasses (herbaceous cover) within the Nesting Habitat Areas will be mowed at least once every two years during the Eastern Box Turtle inactive season (November 1 – April 1). At that time, woody and/or herbaceous vegetation (including all invasive species) may be removed by hand to maintain at least a 50% openness ratio (aerial coverage) of sandy soil conditions for nesting and adequate sunlight penetration necessary for nest incubation.
- 6. Woody vegetation within the Nesting Habitat Areas will be mowed at least once every 4 years during the Eastern Box Turtle inactive season (November 1 – April 1) to inhibit woody plant invasion and maintain at least a 50% openness ratio (aerial coverage) of sandy soil conditions.
- 7. A site evaluation will be conducted every 5 years following completion of the Turtle Habitat Enhancement Plan to assess the condition of the Nesting Habitat Areas. A report will be prepared to NHESP, detailing site specific habitat management recommendations (if necessary), including, but not limited to identifying additional vegetative control/removal by hand, brush-hogging, mowing, and/or selective herbicide application. The more-detailed habitat management activities will only commence following approval from NHESP and may extend over the 5-year period, if necessary. The Town of Plymouth shall take all reasonable steps necessary to implement these management recommendations.

If any modifications are needed, a revised Eastern Box Turtle (*Terrapene carolina*) Protection and Habitat Enhancement Plan must be submitted to NHESP for written approval.



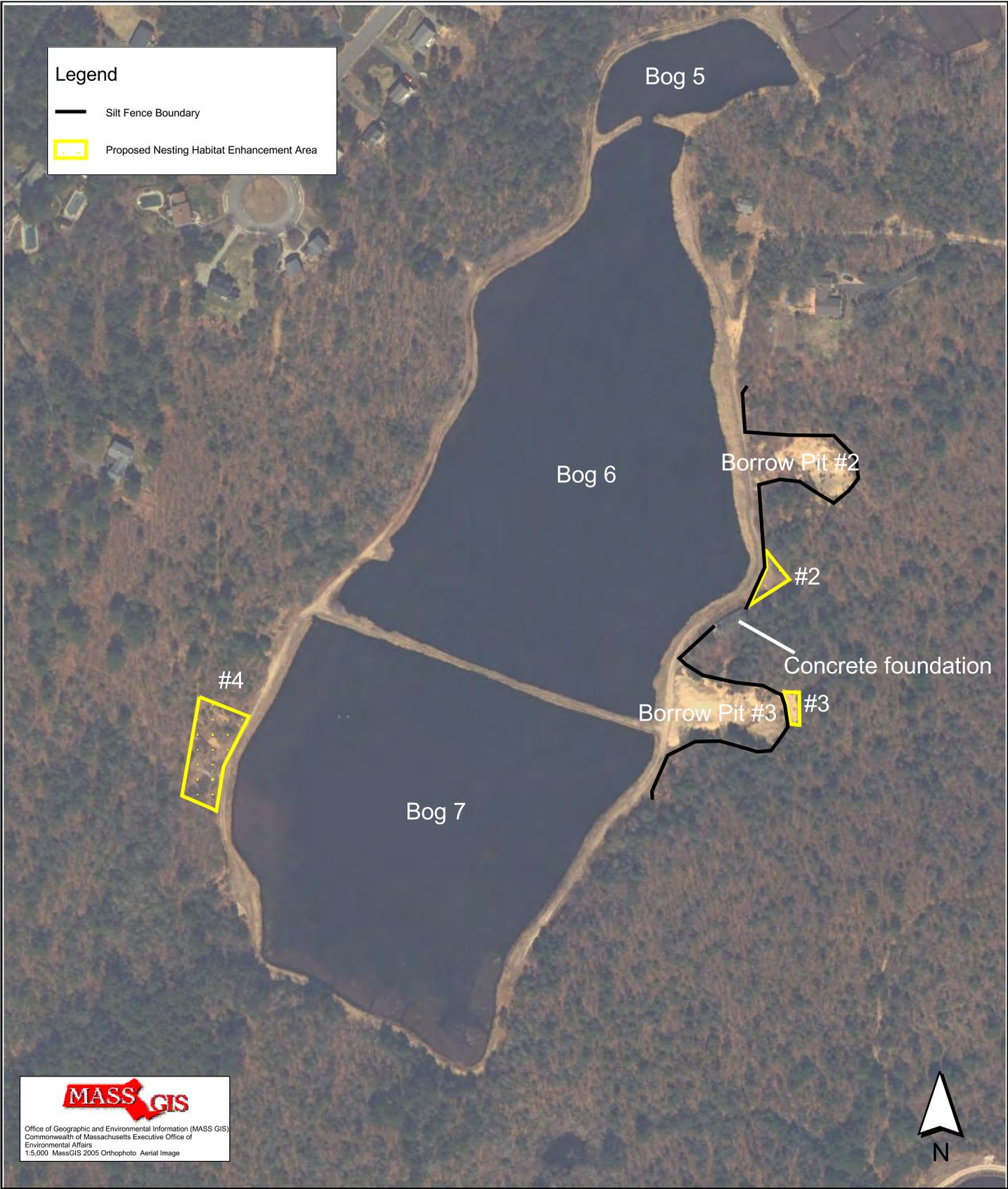
**Figure 1**  
**Proposed Turtle Protection/  
 Habitat Enhancement Plan**

Scale 1:100

**LEC**  
 Environmental Consultants, Inc.  
 36 Cordage Park Circle, Suite 312  
 Plymouth, MA 02360  
 508.746.9491; 508.746.9492 Fax  
 southlec@lecenvironmental.com

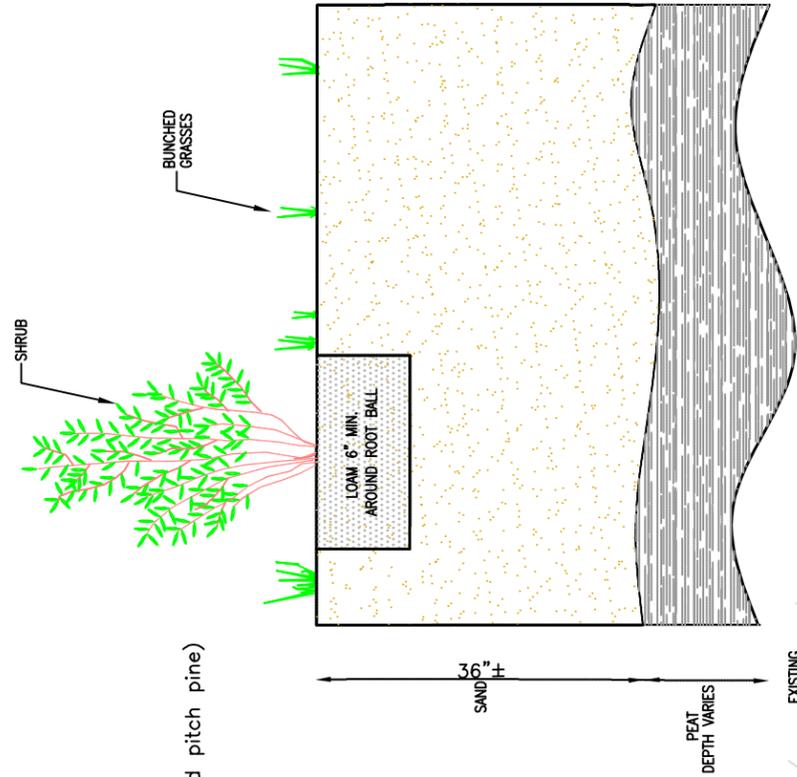
Eel River Headwaters  
 Restoration Project  
 Plymouth, MA

November 6, 2008

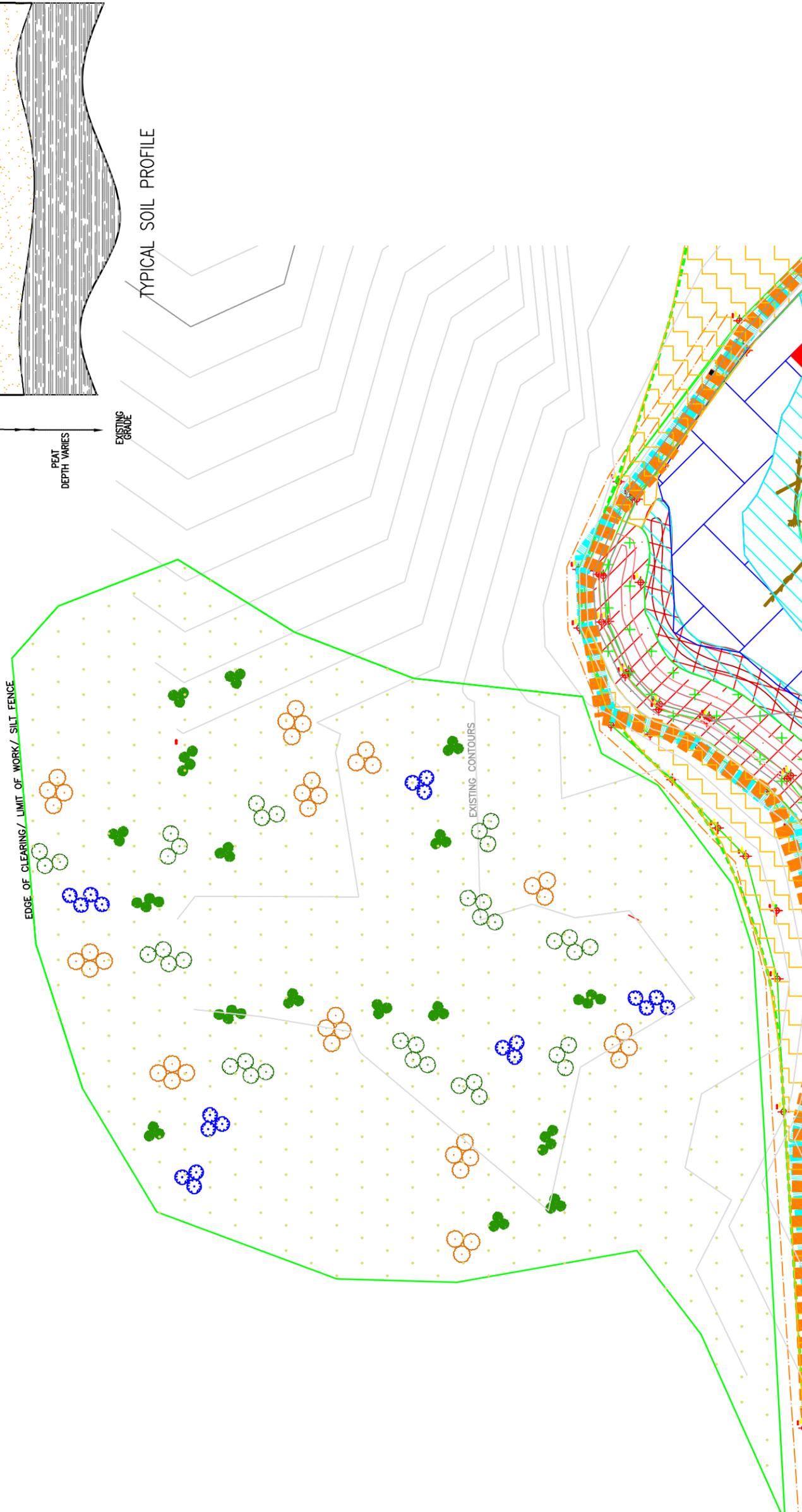


Common Name	Genus/Species	Size	Planting Specifications	No.
<b>Shrubs</b>				
highbush blueberry	<i>Vaccinium corymbosum</i>	2 - 3' min.	in clusters of 2 to 4, 4 - 6 feet o.c.	20
bayberry	<i>Myrica pensylvanica</i>	2 - 3' min.	in clusters of 2 to 4, 4 - 6 feet o.c.	38
beach plum	<i>Prunus maritima</i>	2 - 3' min.	in clusters of 2 to 4, 4-6 feet o.c.	41
sweet fern	<i>Comptonia peregrina</i>	2 - 3' min.	in clusters of 2 to 4, 4-6 feet o.c.	56
<b>Bunched Grasses</b>				
little blue stem	<i>Schizachyrium scoparium</i>	2" plugs	planted as bunches	
broom sedge	<i>Andropogon virginicus</i>	2" plugs	planted as bunches	
switch grass	<i>Panicum virgatum</i>	2" plugs	planted as bunches	

XERIC PLANTING TYPE  
(dry tolerant grasses, scattered pitch pine)



TYPICAL SOIL PROFILE



# Turtle Habitat Enhancement Plan

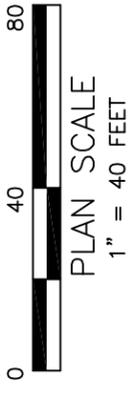
(Borrow Pit #1)

**Eel River  
Headwaters Restoration  
Plymouth, Massachusetts**

LEC File: TOP/08-190.01

Plan adapted by:  
LEC Environmental Consultants, Inc.  
from existing conditions  
plans entitled:  
*Eel River Restoration*  
prepared by:  
**inter-fluve, inc.**  
*dated November 1, 2007*

DATE:  
October 15, 2008  
Revised 11/6/08



PREPARED BY:

**LEC**  
Environmental Consultants, Inc.



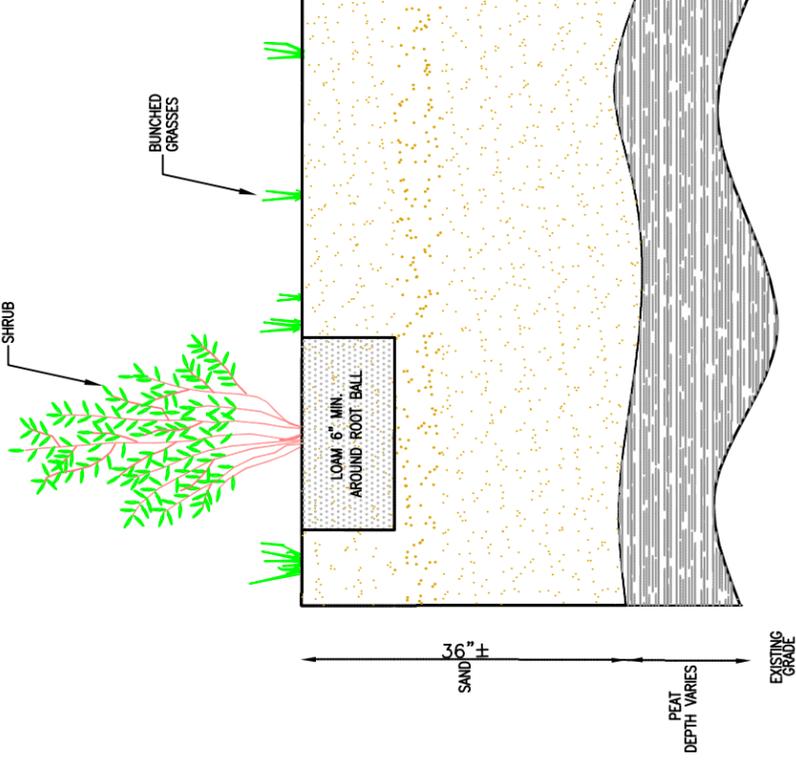
36 Cordage Park Circle, Suite 312  
Plymouth, MA 02360  
508.746.9491  
508.746.9492 fax

email: southlec@leceenvironmental.com

XERIC PLANTING TYPE  
(dry tolerant grasses, scattered pitch pine)



Common Name	Genus/Species	Size	Planting Specifications	No.
<b>Shrubs</b>				
highbush blueberry	<i>Vaccinium corymbosum</i>	2 - 3' min.	in clusters of 2 to 4, 4 - 6 feet o.c.	13
bayberry	<i>Myrica pensylvanica</i>	2 - 3' min.	in clusters of 2 to 4, 4 - 6 feet o.c.	27
beach plum	<i>Prunus maritima</i>	2 - 3' min.	in clusters of 2 to 4, 4-6 feet o.c.	26
sweet fern	<i>Comptonia peregrina</i>	2 - 3' min.	in clusters of 2 to 4, 4-6 feet o.c.	46
<b>Bunched Grasses</b>				
little blue stem	<i>Schizachyrium scoparium</i>	2" plugs	planted as bunches	
broom sedge	<i>Andropogon virginicus</i>	2" plugs	planted as bunches	
switch grass	<i>Panicum virgatum</i>	2" plugs	planted as bunches	



# Turtle Habitat Enhancement Plan

(Borrow Pit #2)

**Eel River  
Headwaters Restoration  
Plymouth, Massachusetts**

LEC File: TOP/08-190.01

Plan adapted by:  
LEC Environmental Consultants, Inc.

from existing conditions  
plans entitled:  
*Eel River Restoration*  
prepared by:



**inter-fluve, inc.**

dated November 1, 2007

DATE:

October 15, 2008  
Revised 11/6/08



PLAN SCALE  
1" = 30 FEET

PREPARED BY:

**LEC**  
Environmental Consultants, Inc.



36 Cordage Park Circle, Suite 312  
Plymouth, MA 02360  
508.746.9491  
508.746.9492 fax

email: southlec@leceenvironmental.com

# Turtle Habitat Enhancement Plan

(Borrow Pit #3)

**Eel River  
Headwaters Restoration  
Plymouth, Massachusetts**

LEC File: TOP/08-190.01

Plan adapted by:  
LEC Environmental Consultants, Inc.  
from existing conditions  
plans entitled:  
*Eel River Restoration*  
prepared by:



**inter-fluve, inc.**

dated November 1, 2007

DATE:

October 15, 2008

Revised 11/6/08



PLAN SCALE  
1" = 30 FEET

PREPARED BY:

**LEC**

Environmental Consultants, Inc.

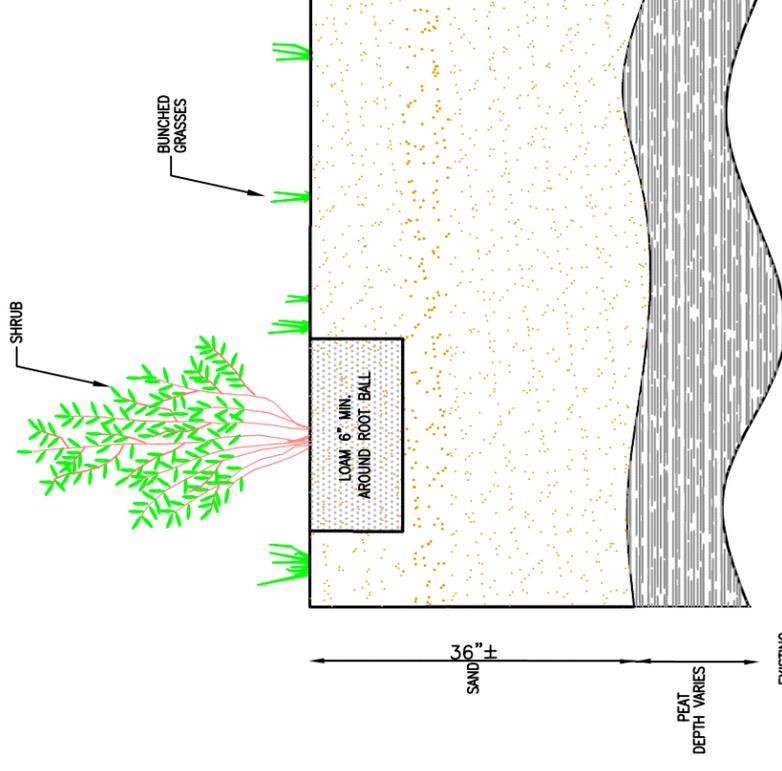
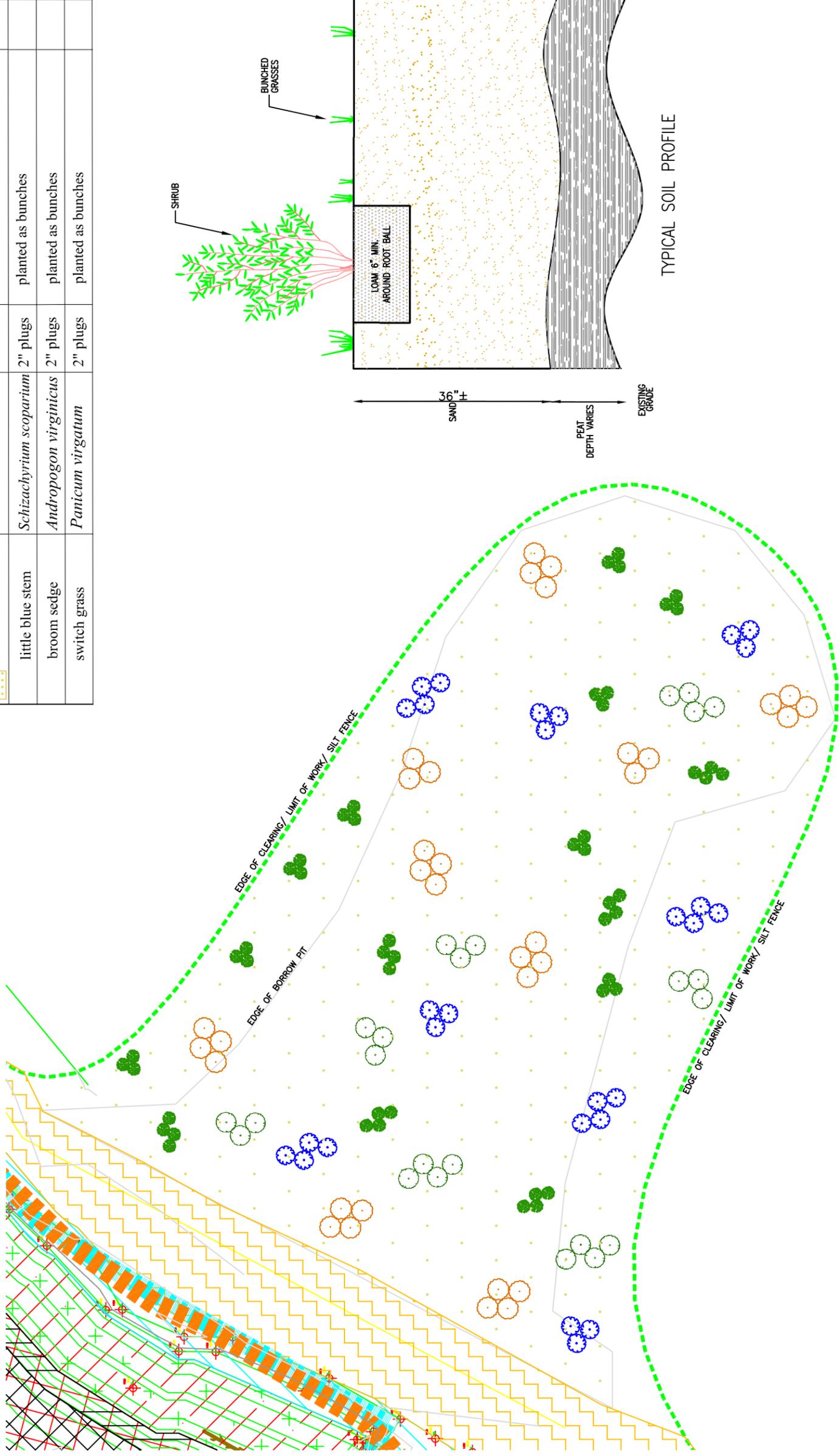


36 Cordage Park Circle, Suite 312  
Plymouth, MA 02360  
508.746.9491  
508.746.9492 fax

email: southlec@leceenvironmental.com

Common Name	Genus/Species	Size	Planting Specifications	No.
<b>Shrubs</b>				
highbush blueberry	<i>Vaccinium corymbosum</i>	2 - 3' min.	in clusters of 2 to 4, 4 - 6 feet o.c.	30
bayberry	<i>Myrica pensylvanica</i>	2 - 3' min.	in clusters of 2 to 4, 4 - 6 feet o.c.	24
beach plum	<i>Prunus maritima</i>	2 - 3' min.	in clusters of 2 to 4, 4-6 feet o.c.	34
sweet fern	<i>Comptonia peregrina</i>	2 - 3' min.	in clusters of 2 to 4, 4-6 feet o.c.	51
<b>Bunched Grasses</b>				
little blue stem	<i>Schizachyrium scoparium</i>	2" plugs	planted as bunches	
broom sedge	<i>Andropogon virginicus</i>	2" plugs	planted as bunches	
switch grass	<i>Panicum virgatum</i>	2" plugs	planted as bunches	

XERIC PLANTING TYPE  
(dry tolerant grasses, scattered pitch pine)



TYPICAL SOIL PROFILE

## APPENDIX E

---

Memorandum of Agreement between  
the U.S. Fish and Wildlife Service and the Massachusetts Historical Commission  
for the Eel River Headwaters Restoration Project, Plymouth, Massachusetts

**MEMORANDUM OF AGREEMENT  
BETWEEN THE  
U.S. FISH AND WILDLIFE SERVICE  
AND THE  
MASSACHUSETTS HISTORICAL COMMISSION  
FOR THE  
EEL RIVER HEADWATERS RESTORATION PROJECT,  
PLYMOUTH, MASSACHUSETTS**

WHEREAS, the Town of Plymouth (Town), the project proponent, is proposing to complete the Eel River Headwaters Restoration Project (Project) that involves the ecological restoration of approximately 38 acres of former commercial cranberry bogs and the restoration of the channelized Eel River in Plymouth, Massachusetts to restore wetland habitat and a free flowing riverine system for migratory and resident fish passage; and

WHEREAS, the Project will require the removal of berms and water control structures used in the former cranberry bog operations and the restoration of a meandering river channel through the bog area, both contributing elements of the South Pond Village (MHC PLY-Y); and the breaching of the Saw Mill Dam (formerly Glendale Mill Dam) (PLY-HA-19); and

WHEREAS, the U. S. Fish and Wildlife Service (USFWS), as lead federal agency for the Project has determined that the cranberry bog restoration and Eel River restoration in Plymouth, Massachusetts, will have an adverse effect on South Pond Village and the Saw Mill Dam which have both been determined as eligible for the National Register of Historic Places; and

WHEREAS, the USFWS has consulted with the Massachusetts Historical Commission (MHC) pursuant to applicable regulations found in 36 CFR Part 800, and 33 CFR Part 325, Appendix C, implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the USFWS has invited the Advisory Council on Historic Preservation (ACHP) to participate in the consultation process, and the ACHP has determined that its participation in the consultation to resolve adverse effects is not necessary; and

WHEREAS, the USFWS and the Town have coordinated with and solicited input from tribal interests (Mashpee Wampanoag Tribal Council and Wampanoag Tribe of Gay Head/Aquinnah) to participate in this Section 106 Consultation process; and

WHEREAS, the USFWS and the Town have coordinated with and solicited input from the local and regional community interested in historic resources to participate in this Section 106 Consultation process; and

NOW THEREFORE, the USFWS and MHC agree that the Project undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

## STIPULATIONS

The USFWS shall insure that the following measures are carried out in consultation with the MHC:

### I. Documentation

#### Cranberry Bog Complex

- A. The USFWS, with the assistance of a 36 CFR 61 qualified architectural/industrial historian, will provide state-level photographic documentation that includes digital black and white archival photography along with a copy of the updated Area Form for the South Pond Village that includes the written description and historical narrative of the cranberry bog landscape and the village. The specific content of the state-level documentation will be determined in consultation with the MHC.
- B. The documentation will be submitted to and reviewed and approved by the MHC. If comments are not received within 30 days of submission, it will be assumed that the documentation is complete and acceptable.
- C. An original of the documentation will be provided to the Commonwealth of Massachusetts for the MHC files. Copies of this documentation will be made available by the USFWS to appropriate local archives such as the Plymouth Historical and Historic District Commission and Plymouth Town Library, or as designated by the USFWS in consultation with the MHC.

#### Saw Mill (Glendale) Dam

- A. The USFWS, with the assistance of a 36 CFR 61 qualified industrial historian/archaeologist, will monitor the construction excavation and stone removal activities during the breaching of the Saw Mill Dam. The monitoring effort will include the recordation of any structural elements (e.g. core of the dam) exposed during excavation and stone removal work. Digital photographs and sketch/measured drawings will be taken as safety considerations allow.
- B. A technical report will be submitted to the MHC describing the results of the monitoring and documentation effort that meets the state permitting standards of the MHC guidelines for archaeological investigations (950 CMR 70/71). The report will include a public education component to disseminate information about the historic site to the interested public.

- C. The report will be submitted to, and reviewed and approved by, the MHC. If comments are not received within 30 days of submission, it will be assumed that the documentation is complete and acceptable.
- D. An original of the documentation will be provided to the Commonwealth of Massachusetts for the MHC files. Copies of this documentation will be made available by the USFWS to appropriate local archives such as the Plymouth Historical and Historic District Commission and Plymouth Town Library, or as designated by the USFWS in consultation with the MHC.

## II. Interpretation

### Cranberry Bog Complex

- A. The USFWS and the Town, with the assistance of a 36 CFR 61 qualified architectural historian, and in consultation with the MHC and Plymouth Historical and Historic Commission, will prepare text and images to be used in interpretive panels explaining and illustrating the history of the cranberry bog industry in this section of the upper Eel River. The deadline for completing and installing the panels shall be three (3) years from the date of execution of this Memorandum of Agreement (MOA). This deadline may be extended if mutually agreeable between the USFWS and the MHC.

### Saw Mill (Glendale) Dam

- A. The USFWS and the Town, with the assistance of a 36 CFR 61 qualified industrial historian/archaeologist, and in consultation with the MHC and Plymouth Historical and Historic Commission, will prepare text and images to be used in interpretive panels explaining and illustrating the history of the mill activities in this section of the upper Eel River. The deadline for completing and installing the panels shall be three (3) years from the date of execution of this MOA. This deadline may be extended if mutually agreeable between the USFWS and the MHC.

## III. Monitoring

- A. The USFWS, Town and other Project partners will contract with a qualified historic masonry contractor to technically review and oversee any structural work that may be needed to stabilize the south dam abutment to accommodate the proposed new footbridge. The masonry conservator will ensure the historical appropriateness of the new stonework so that it matches the existing stonework in character and construction technique, using the stones that are removed from the north dam abutment and spillway.

IV. Unidentified Historic Properties

- A. The USFWS, Town, and other Project partners will ensure that if previously unidentified historic properties are discovered which may be affected by the undertaking, they will notify the MHC and other appropriate parties. The USFWS and MHC will apply the National Register criteria and eligibility, and consult pursuant to 36 CFR 800.4.

V. Dispute Resolution

- A. Should any signatory to this Agreement object within thirty (30) days to any actions proposed or carried out pursuant to this MOA, the USFWS shall consult with the MHC to resolve the objection. If the USFWS determines that the objection cannot be resolved, the USFWS shall forward all documentation relevant to the dispute to the ACHP. Within thirty (30) days after receipt of all pertinent documentation, the ACHP will either:

- 1. Provide the USFWS with recommendations which the USFWS will take into account in reaching a final decision regarding the dispute; or

- 2. Notify the USFWS that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any recommendations or comment provided by the ACHP will be understood to pertain only to the subject of the dispute; the USFWS responsibility to carry out all actions under the MOA that are not subject of the dispute will remain unchanged.

- B. If at any time during the implementation of the measures stipulated in this MOA, an objection should be raised by an interested member of the public or consulting parties, the USFWS will consult with the other parties to this MOA to determine the appropriate response.

VI. Duration

This MOA will expire if its terms are not carried out within three (3) years from the date of its execution. Prior to such time, the USFWS may consult with the other signatories to reconsider the terms of this MOA and amend it in accordance with Stipulation VII below.

VII. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VIII. Termination

- A. If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.
  
- B. In the event the MOA is terminated, the USFWS will either execute an MOA with signatories pursuant to 36 CFR 800.6 (c) or request the comments of the ACHP under 36 CFR 800.7 (a).

Execution of this Memorandum of Agreement by the USFWS and the MHC and its subsequent filing with the ACHP, and implementation of its terms evidences that the USFWS has afforded the ACHP an opportunity to comment on the Eel River Headwaters Restoration Project, and that USFWS has taken into account the effects of the undertaking on historic properties.

U. S. FISH AND WILDLIFE SERVICE

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Supervisor, New England Field Office

MASSACHUSETTS HISTORICAL COMMISSION

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Brona Simon, Executive Director, State Historic Preservation Officer, State  
Archaeologist

INVITED SIGNATORIES:

TOWN OF PLYMOUTH, MASSACHUSETTS

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Town Manager, Town of Plymouth