

Commonwealth of Massachusetts

Executive Office of Environmental Affairs ■ MEPA Office

**ENF**

**Environmental Notification Form**

|                                                                                |               |
|--------------------------------------------------------------------------------|---------------|
| <i>For Office Use Only</i><br><i>Executive Office of Environmental Affairs</i> |               |
| EOEA No.:                                                                      | 14260         |
| MEPA Analyst:                                                                  | Holly Johnson |
| Phone:                                                                         | 617-626-1023  |

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

|                                                                                             |                                                                       |                                      |
|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------|
| Project Name: <b>RED BROOK HABITAT RESTORATION</b>                                          |                                                                       |                                      |
| Street: <b>Red Brook Road</b>                                                               |                                                                       |                                      |
| Municipality: <b>Plymouth/Wareham</b>                                                       | Watershed: <b>Buzzard's Bay</b>                                       |                                      |
| Universal Tranverse Mercator Coordinates:<br><b>-70.635698 41.766024</b>                    | Latitude: <b>41° 54' 39.60"N</b><br>Longitude: <b>70° 38' 45.60"W</b> |                                      |
| Estimated commencement date: <b>Summer 2009</b>                                             | Estimated completion date: <b>Summer 2010</b>                         |                                      |
| Approximate cost: <b>\$ 143,000</b>                                                         | Status of project design: <b>95</b>                                   | %complete                            |
| Proponent: <b>Riverways Program, Department of Fish and Game</b>                            |                                                                       |                                      |
| Street: <b>251 Causeways St.</b>                                                            |                                                                       |                                      |
| Municipality: <b>Boston</b>                                                                 | State: <b>MA</b>                                                      | Zip Code: <b>02114</b>               |
| Name of Contact Person From Whom Copies of this ENF May Be Obtained:<br><b>Tim Purinton</b> |                                                                       |                                      |
| Firm/Agency: <b>Riverways Program</b>                                                       | Street: <b>251 Causeway St.</b>                                       |                                      |
| Municipality: <b>Boston</b>                                                                 | State: <b>MA</b>                                                      | Zip Code: <b>02114</b>               |
| Phone: <b>617-626-1542</b>                                                                  | Fax: <b>617-626-1505</b>                                              | E-mail: <b>tpurinton@state.ma.us</b> |

- Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?  
 Yes  No
- Has this project been filed with MEPA before?  
 Yes (EOEA No. \_\_\_\_\_)  No
- Has any project on this site been filed with MEPA before?  
 Yes (EOEA No. \_\_\_\_\_)  No
- Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:
- a Single EIR? (see 301 CMR 11.06(8))  Yes  No
  - a Special Review Procedure? (see 301CMR 11.09)  Yes  No
  - a Waiver of mandatory EIR? (see 301 CMR 11.11)  Yes  No
  - a Phase I Waiver? (see 301 CMR 11.11)  Yes  No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres):

**Massachusetts Riverways Program: \$ 75,000**

Are you requesting coordinated review with any other federal, state, regional, or local agency?  
 Yes (Specify \_\_\_\_\_)  No

List Local or Federal Permits and Approvals: **USACE Section 404, Individual Permit**

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

**Alteration of 500 or more linear feet of bank along a fish run or inland bank**

- |                                 |                                       |                                                                      |
|---------------------------------|---------------------------------------|----------------------------------------------------------------------|
| <input type="checkbox"/> Land   | <input type="checkbox"/> Rare Species | <input checked="" type="checkbox"/> Wetlands, Waterways, & Tidelands |
| <input type="checkbox"/> Water  | <input type="checkbox"/> Wastewater   | <input type="checkbox"/> Transportation                              |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Air          | <input type="checkbox"/> Solid & Hazardous Waste                     |
| <input type="checkbox"/> ACEC   | <input type="checkbox"/> Regulations  | <input type="checkbox"/> Historical & Archaeological Resources       |

| Summary of Project Size & Environmental Impacts                | Existing  | Change        | Total | State Permits & Approvals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------|-----------|---------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LAND</b>                                                    |           |               |       | <input checked="" type="checkbox"/> Order of Conditions<br><input type="checkbox"/> Superseding Order of Conditions<br><input type="checkbox"/> Chapter 91 License<br><input type="checkbox"/> 401 Water Quality Certification<br><input type="checkbox"/> MHD or MDC Access Permit<br><input type="checkbox"/> Water Management Act Permit<br><input type="checkbox"/> New Source Approval<br><input type="checkbox"/> DEP or MWRA Sewer Connection/ Extension Permit<br><input checked="" type="checkbox"/> Other Permits<br>(including Legislative Approvals) – Specify:<br><br><b>Mass Historical Review (complete)</b> |
| Total site acreage                                             | 210 acres |               |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| New acres of land altered                                      |           | .7 acres      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Acres of impervious area                                       | 0         | 0             | 0     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Square feet of new bordering vegetated wetlands alteration     |           | 2,464 sq. ft. |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Square feet of new other wetland alteration                    |           | 1,028 sq. ft. |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Acres of new non-water dependent use of tidelands or waterways |           | N/A           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>STRUCTURES</b>                                              |           |               |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Gross square footage                                           | 0         | 0             | 0     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Number of housing units                                        | 0         | 0             | 0     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum height (in feet)                                       | N/A       | N/A           | N/A   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>TRANSPORTATION</b>                                          |           |               |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vehicle trips per day                                          | N/A       | N/A           | N/A   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Parking spaces                                                 | 0         | 0             | 0     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>WATER/WASTEWATER</b>                                        |           |               |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Gallons/day (GPD) of water use                                 | N/A       | N/A           | N/A   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| GPD water withdrawal                                           | N/A       | N/A           | N/A   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| GPD wastewater generation/ treatment                           | N/A       | N/A           | N/A   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Length of water/sewer mains (in miles)                         | N/A       | N/A           | N/A   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**CONSERVATION LAND:** Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

- Yes (Specify \_\_\_\_\_)  No

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation

restriction, or watershed preservation restriction?

Yes (Specify \_\_\_\_\_)  No

**RARE SPECIES:** Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

Yes A portion of the site is located within Estimated Habitat of Rare Species, as illustrated in the most recent NHESP atlas, internal DFG coordination has been initiated, habitat restoration will improve the quality of aquatic habitat and best management practices will be executed to minimize species disturbance. See Rare Species Section for more detail on species of concern and protective measures.

No

**HISTORICAL /ARCHAEOLOGICAL RESOURCES:** Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

Yes (Specify \_\_\_\_\_)  No See attached letter from Massachusetts Historical Commission

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

Yes (Specify \_\_\_\_\_)  No

**AREAS OF CRITICAL ENVIRONMENTAL CONCERN:** Is the project in or adjacent to an Area of Critical Environmental Concern?

Yes (Specify \_\_\_\_\_)  No

**PROJECT DESCRIPTION:** The project description should include (a) a description of the project site, (b) a description of both on-site and off-site alternatives and the impacts associated with each alternative, and (c) potential on-site and off-site mitigation measures for each alternative (You may attach one additional page, if necessary.)

Please refer to the attached Project Narrative for further detail than provided here and for figures illustrating the Project area and concept.

## SITE DESCRIPTION

Red Brook is a 4.5 mile long coldwater stream running from White Island Pond to Buttermilk Bay in Wareham and Plymouth, Massachusetts. The stream supports a variety of fish species; including eel, alewife, herring and one of the last remaining native sea-run brook trout populations in the eastern United States. Sea-run brook trout, or "salters", migrate to and from Red Brook, feeding on small fish and macroinvertebrates in the estuary and near shore habitats. The entire project area is contained within the Red Brook Reserve, a 638 acre preserve including the 210 acre Theodore Lyman Reserve and the 428 acre Red Brook Wildlife Management Area (WMA).

Within the Lyman Reserve are three water control structures called flumes that are remnants of historic cranberry operations that have been abandoned since the middle of the last century. Each structure consists of a concrete outlet and adjacent earthen levees intended to contain water upstream and allow the level to be manipulated as necessary. A fourth control structure exists at the Sandwich Rd. crossing, left in place after the historic road was removed. The impact of these structures has been to fragment the adjoining floodplain into discrete units disconnected in varying degrees from the stream. Further, the structures have inhibited to an unknown degree the natural transport of sediment through the brook and into Buttermilk Bay.

## PROPOSED PROJECT OBJECTIVES AND DESCRIPTION

Project partners include: Massachusetts Riverways Program, The Trustees of Reservations (TTOR), Trout Unlimited (TU), Massachusetts Division of Fisheries and Wildlife (Mass DFW), American Rivers, USFWS and NOAA. Partners have helped develop the following objectives:

- Reconnect riparian floodplain habitats to the stream by removing levees and water control structures
- Ensure minimal impact to the stream, particularly in the form of sediment inputs, resulting from levee removal
- Restore instream complexity for all species, particularly “salter” brook trout, by adding large trees
- Maintain existing pool locations created by the flumes, with the understanding that their size will decrease to a more normal geometry in absence of the flumes
- Transform the casting pool into a more natural side channel habitat area
- Naturalize the Sandwich Rd. crossing while maintaining the pool downstream (an important feeding area for salters)

Solutions to restoring Red Brook are intended to begin reinstating the natural processes that governed the function of the stream prior to impacts from riparian logging, cranberry operations, and stream crossings. A detailed discussion of the recommendations driving the projects presented below can be found in the 2006 Concept Design Report and the attached revised report.

#### ***#1 - Remove 3 Flumes and All Associated Levees***

The plan set accompanying this ENF provides the location of the levee system in the vicinity of each flume along with an estimate of the amount of material required for removal. These levees are composed mainly of sand, based on observations during the removal of a similar levee in 2006 in an upper reach of the brook.

#### ***#2 – Add Large Woody Debris Habitat Structure***

As detailed in the 2006 Concept Report, the riparian area along Red Brook has been subjected to numerous rounds of logging, limiting sources of large trees available to fall into the stream for habitat. Substantial reaches of Red Brook both within and outside of the project area are lacking large woody debris and the resulting habitat heterogeneity they provide. Adding this component back into the project reach will reinstitute this habitat. Most of the structures will be single or double log configurations placed in a manner to induce scour on the bed and create a pool.

#### ***#3 – Remove the Side Channel Culvert***

A relic side channel exists along the east side of the property. The inlet is located just upstream of the upper flume and is controlled by an antiquated gate structure. The side channel is straight and of uniform depth and holds little habitat value except as flood refuge during high flows. It is recommended that the outlet culvert be removed along with the levee over its top. This will leave the side channel open for utilization by various aquatic species as water levels permit. It is assumed that amphibians already utilize the area and will continue to do so regardless of changes to the culvert outlet. The inlet structure upstream will also be removed and fill will be placed to permanently exclude active flow from entering the artificial side channel.

#### ***#4 - Convert Casting Pool to Side Channel Habitat – Re-activate the West channel***

The existing casting pool is filling with sediment. The pond will likely continue filling with material, eventually achieving the more narrow geometry of a natural stream system.

The casting pool will be utilized as a temporary sediment basin, capturing any material generated by the removal of the flumes upstream. The split with the West channel just upstream will be augmented by a temporary flow diversion structure similar in purpose to the existing plywood diversion, to push a majority of Red Brook’s flow into the casting pool, ensuring maximum trapping efficiency of sediment. The diversion structure will not inhibit fish passage and will be inundated during tidal events. The diversion will be built by hand and will only be as large as necessary to push the preferential flow path of sediment laden water toward the casting pool. The short term, temporary impact on the West channel will be minor.

The partial filling of this pool will provide several benefits. By narrowing the pond, solar heating of the water

is minimized. The *potential* habitat that may result would be a tidal brackish water area that would provide habitat for both resident and migrating species of various life stages. Eventually flow will be fully diverted back into the West channel, where it will aid in returning that channel length to a more natural geometry, restoring its function and habitat value.

#### ***#5 - Reduce the Sandwich Rd. Weir Elevation and Widen the Opening***

The invert of the pool immediately downstream was identified as important habitat feature for salters. The existing weir will be replaced with a permanent V-shaped stone structure, called a cross vane, to concentrate flow to the middle of the channel and maintain the pool depth that currently exists downstream. The pool width will likely narrow through deposition to a more natural geometry. The weir will also be widened from its current channel width to dampen the backwater associated with the constriction and allow construction of the cross vane.

### **ALTERNATIVES ANALYSIS**

This restoration of Red Brook is a proactive habitat restoration project that seeks to improve ecological conditions and promote a more sustainable condition. Alternatives analyses typically seek to reduce impacts to resource areas with the assumption that there is some level of loss of functions and values; it is the intent of this restoration to work directly within the resource areas to improve conditions, therefore a typical alternative analysis – that seeks to minimize permanent resource damages is not directly applicable.

#### **Alternative 1 (Preferred): Habitat Restoration: Dike and Berm Removals; Natural Stream Flow, Restoration of the West Channel**

The Town of Plymouth recognizes that large scale restoration opportunities on the East Coast are rare, particularly because of the density of development and associated watershed impacts. In the case of the Eel River, the watershed is only marginally developed and has surficial geology that promotes groundwater infiltration. This Project attempts to restore the upper Eel River to a facsimile of that found prior to European settlement. Given its proximity to an urban area, this Project represents a unique opportunity for large scale reclamation nestled within an already highly disturbed area. In addition, by restoring natural wetlands, this Project will restore ecological health and increase species diversity, including native trees, plants, and fish, and with careful long-term monitoring will strive to avoid potential invasion of aggressive, non-native species. The stream channel will be shaded, thus providing shelter from heat in the summer and/or predators.

**Alternative 2: No-Action Alternative.** The No-Action alternative in this case would eliminate the cost of restoration and would allow Project partners to focus their attention on other projects. This initial cost savings may however be the only positive aspect of no action. The No-Action alternative would allow the existing flow restrictions to remain. While implementing the No-Action alternative would mean that there would be no alterations to the resource areas associated with channel restoration. In addition, if no action is taken, opportunities for environmental education and public interaction will be lost. Natural ecosystem restoration is the primary goal of this proposed Project; the No-Action alternative would not serve the Project purpose and may eventually lead to the localized decline in salter brook trout habitat.

### **PRESERVATION OF RESOURCE AREA INTERESTS**

This Project will require temporary alterations to Bank, Land Under Water, Bordering Vegetated Wetlands, Land Subject to Flooding, and Riverfront Area, but will result in a net benefit for all these resources. Please refer to the Project Report for further information on the preservation of resource area interests. Please note issues like Time of Year restrictions, best management construction practices and optimizing work in the dry will be employed and likely conditioned.

### **LAND SECTION – all proponents must fill out this section**