

**Commonwealth of Massachusetts**  
**Executive Office of Environmental Affairs ■ MEPA Office**

**ENF Environmental Notification Form**

*For Office Use Only*  
*Executive Office of Environmental Affairs*

EOEA No.: 13685  
 MEPA Analyst: Nick ZAVOLAS  
 Phone: 617-626-1030

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: Long Pond Dam Rehabilitation		
Street: off Sandy Pond Rd.		
Municipality: Ayer	Watershed: Nashua River	
Universal Tranverse Mercator Coordinates:	Latitude: 42°33.9'N Longitude: 71°32.8'W	
Estimated commencement date: 4/06	Estimated completion date: 6/06	
Approximate cost: \$50,000	Status of project design: 95	%complete
Proponent: Town of Ayer, DPW Superintendent Michael Madigan		
Street: 25 Brook St.		
Municipality: Ayer	State: MA	Zip Code: 01432
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Mark Mitsch		
Firm/Agency: Weston & Sampson Eng.	Street: 5 Centennial Drive	
Municipality: Peabody	State: MA	Zip Code: 01960
Phone: 978-532-1900	Fax: 978-977-0100	E-mail: mitschm@wseinc.com

- 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): None

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

List Local or Federal Permits and Approvals:  
 Notice of Intent, Wetlands Protection Act Ayer Cons. Comm. Pending (submitted July 21, 2005)

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

- |                                          |                                       |                                                                |
|------------------------------------------|---------------------------------------|----------------------------------------------------------------|
| <input type="checkbox"/> Land            | <input type="checkbox"/> Rare Species | <input 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 checked="" 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 <input type="checkbox"/> Superseding Order of Conditions <input checked="" type="checkbox"/> Chapter 91 License <input checked="" type="checkbox"/> 401 Water Quality Certification <input type="checkbox"/> MHD or MDC Access Permit <input type="checkbox"/> Water Management Act Permit <input type="checkbox"/> New Source Approval <input type="checkbox"/> DEP or MWRA Sewer Connection/ Extension Permit <input type="checkbox"/> Other Permits <i>(including Legislative Approvals) – Specify:</i>
Total site acreage	0.15			
New acres of land altered		0		
Acres of impervious area	0	0	0	
Square feet of new bordering vegetated wetlands alteration		533(permanent) 45 (temporary)		
Square feet of new other wetland alteration		LUW: 466 (perm), 890 (temp) BLSF: 2200 (perm), 3198 (temp)		
Acres of new non-water dependent use of tidelands or waterways		0		
<b>STRUCTURES</b>				Ch. 253 Dam Safety Permit – issued: (forthcoming)
Gross square footage	2800	0	2800	
Number of housing units	0	0	0	
Maximum height (in feet)	~8, hgt of dam above stream channel bottom	0	~8	
<b>TRANSPORTATION</b>				
Vehicle trips per day	0	0	0	
Parking spaces	0	0	0	
<b>WATER/WASTEWATER</b>				
Gallons/day (GPD) of water use	0	0	0	
GPD water withdrawal	0	0	0	
GPD wastewater generation/ treatment	0	0	0	
Length of water/sewer mains (in miles)	0	0	0	

**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 (Specify See letter attached \_\_\_\_\_ )  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

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 Petapawag ACEC \_\_\_\_\_ )  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.)

### **Project Description**

Long Pond Dam is classified as an INTERMEDIATE size, LOW HAZARD dam according to 302 CMR 10.00 (the Massachusetts Dam Safety Regulations). The Dam is currently in POOR CONDITION. The crest of the earth embankment portion of the dam is eroded near the stone masonry spillway and no longer level, the stone masonry walls of the spillway are collapsing on one side, and small trees and brush have been allowed to grow on the upstream side of the dam. Each of these is considered an inadequacy of the dam and should be corrected to reduce the potential for a breaching failure of the dam.

The proposed project involves cutting the vegetation on the upstream slope of the dam, reconstructing the existing stone masonry spillway training walls and weir with reinforced concrete, placing soil and rock fill materials along the crest of the dam to re-level the crest of the dam, and protecting the upstream slope of the earth embankment with riprap to prevent erosion during heavy storm conditions. The attached drawings (Sheets C-1, C-2 and C-3) illustrate the scope of the project.

The Town of Ayer will conduct the proposed work with oversight provided by Weston & Sampson Engineers, Inc.

### **Wetland Resources**

This project will have temporary and permanent impacts to four wetland resource areas, as noted

in the Notice of Intent form. The impacts have been minimized to the extent practicable by the project design. The primary objective of the project is to improve the stability and hydraulic capability of the dam for the larger goal of helping assure the long-term existence of the 46-acre Long Pond, which is a Great Pond with associated significant environmental resources within the Petapawag Area of Critical Environmental Concern. A breach or collapse of the dam, which is currently in poor condition, could result in significant adverse environmental impacts due to loss of the Long Pond impoundment. The wetland impacts associated with the project, as described below, have been limited to the extent practicable but are necessary to assure the safety of this dam and long-term existence. It should be noted that if there is a future collapse of the dam and the impoundment is lost, the likely corrective measures to restore the impoundment would include reconstructing the dam in general accordance with the proposed design.

### Bank

The bank on this site consists of the upstream and downstream slopes of the man-made earthen embankment that forms the dam. The bank is defined by the change in slope along the crest of the embankment on both the upstream and downstream sides of the dam. This project will result in approximately 280 linear feet of permanent impacts to the bank on the upstream side of the dam due to vegetation removal and riprap placement for protection against embankment erosion during heavy storm conditions.

### Bordering Vegetated Wetland

Weston & Sampson delineated the Bordering Vegetated Wetland (BVW) in April 2005 and also surveyed the wetland flags for inclusion on the site plan. The project will result in approximately 533 square feet of permanent impacts and 45 square feet of temporary impacts to BVW. The permanent impacts are limited to the upstream slope and part of the crest of the embankment near the spillway. These impacts are due to the required removal of small trees and brush from the upstream slope and placing riprap to protect the resulting slope from future erosion, and filling to raise and re-level the embankment crest near the spillway.

It is a standard dam safety requirement that trees and brush not be allowed to grow on dams. Unlike grassy vegetation, the roots from woody vegetation (trees and brush) on an earth embankment dam create multiple risks to the integrity of the embankment. The shallow, intertwined root systems of grasses form a protective layer that tends to limit soil erosion. However, the larger, more dispersed, and deeper roots of woody vegetation tend to loosen the soil as they grow. Also, the trunks of trees and brush can cause a flow of water to be concentrated over ground surrounding the trunks during heavy storm conditions. This concentrated flow results in significantly increased soil erosive forces. Further, if a tree dies, the roots shrink (approximately 1/3 in volume) and cause potential pathways for internal embankment erosion. Lastly, trees and brush provide excellent cover for burrowing animals that can exacerbate internal erosion problems on an earth embankment dam.

Over time, woody wetland vegetation has been allowed to grow up along the embankment, as well as along the sides of the spillway structure. In addition, beaver activity has resulted in periodic spillway blockages. The beaver activity has resulted in water flow to overtop the crest of the dam. The trees and brush have caused the flow to be concentrated next to the spillway, which has resulted in erosion of the embankment crest near the spillway and partial collapse of the stone masonry spillway itself. Beaver activity may continue to cause overtopping problems in the

future. However, vegetation removal along the upstream slope combined with leveling the embankment crest will allow rising water to overtop the dam in a more even, controlled manner along the full length of the dam, thus reducing the risk of erosion.

The temporary impacts to BVW are due to the three-foot limit of work on the downstream side of the dam where the silt fence and hay bales will be installed for erosion control during the project.

#### Land Under Waterbodies and Waterways

Land under water is defined as land under water extending up to the mean low water level. The water level in Long Pond is relatively constant and is defined by the spillway weir crest elevation, which is El. 257.6 (feet). The approximate shoreline elevation of the no-name stream on the downstream side of the dam was observed during a site visit and is shown on the attached site plan (Sheet C-1). This project will result in approximately 466 square feet of permanent impacts and 890 square feet of temporary impacts to land under water. The permanent impacts are due to riprap that will be placed along the base of the spillway on the downstream side, and along the upstream side of the dam for bank stabilization and to minimize erosion.

#### Bordering Land Subject to Flooding

The entire site is located within the 100-year flood zone, according to the most recent FEMA map (July 19, 1982). This project will result in approximately 2,200 square feet of permanent impact and 3,198 square feet of temporary impact to bordering land subject to flooding. The permanent impact is due to riprap that will be placed along the upstream and downstream slopes of the embankment for the length of the dam, as well as maintenance access improvements to the top of the dam. The crest of the embankment will be finished with a gravel walkway and a pedestrian walkway over the spillway. Temporary impacts to this resource area will be due to construction access and the construction staging area to be located along the gravel road to the west of the dam.

#### **Erosion and Sedimentation Control**

The project limit of work will be lined with staked haybales and silt fence along the land surface, as shown on Plan C-1. A floating turbidity curtain will be installed along the limit of work in the reservoir and in the outlet stream downstream of the project. This curtain is a geotextile fabric that hangs down through the water column from a floating boom, and is weighted on the pond and stream bottom by a ballast chain enclosed in a fabric pocket. A description of a turbidity curtain produced by Boom Environmental ([www.boomenviro.com/cotainment/turbidity.htm](http://www.boomenviro.com/cotainment/turbidity.htm)) is enclosed for your information. This product or a similar model will be used to protect the surface waters during construction.

#### **Alternatives Analysis**

The primary objective of the project is to improve the stability and hydraulic capability of the dam to accomplish the greater goal of helping assure the long-term existence of the 46-acre Long Pond. Long Pond is a Great Pond with significant associated environmental resources within the Petapawag Area of Critical Environmental Concern. A breach or collapse of the dam, which is currently in poor condition, could result in significant adverse environmental impacts due to loss of the Long Pond impoundment. There is no off-site alternative to the project. The potential alternatives include 1) No Action and 2) The Proposed Repair Design.

1) No Action

As indicated above, the No Action alternative is not a preferred alternative given the poor structural and hydraulic condition of the dam. The dam is critical to maintaining the quality of environmental resources associated with Long Pond. A breach of the dam would result in loss of all or part of the impoundment with significant adverse environmental impacts. The risk of a breaching failure is relatively high due to the poor structural condition of the dam. Accordingly, No Action is considered unacceptable. Further, in the event of a dam breach and associated loss of impoundment and other adverse environmental impacts, the likely corrective measures would include reconstructing the dam in a manner consistent with our repair design.

2) Proposed Dam Repair

Once the proposed dam repairs are complete the risk of a breaching failure will be significantly reduced. Proposed repairs include raising and leveling the embankment crest, removing adverse vegetation from the upstream slopes of the embankment and installing riprap on the upstream slopes to protect against erosion during heavy storm events, and making improvements to the spillway. Our design limits the potential environmental impacts to the extent practicable while improving compliance with the Dam Safety Regulations. While this work will have limited environmental impacts, the benefits of helping to sustain the pond are significant.

In addition, there is momentum and funding at this time to design, permit and construct the dam repairs. The proposed repair design has been prepared to minimize impacts to wetland resources while repairing the dam for long-term structural integrity and safety, in accordance with the Dam Safety Regulations. While there are some unavoidable impacts to wetland resources in the area, this project falls under the category of a "Limited Project" under 310 CMR 10.53(3)(i) of the Wetlands Protection Regulations. The particular locations of the resources that are being impacted (Bank, Bordering Vegetated Wetland, Bordering Land Subject to Flooding, and Land Under Water) are on or directly adjacent to the man-made dam structure, including the spillway and embankment, and such impacts cannot be avoided during dam repair. Accordingly, the proposed dam repair project is considered the preferred alternative.