

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
MEPA Office

ENF Environmental Notification Form

For Office Use Only
Executive Office of Energy & Environmental Affairs
 EEA No. **14599**
 MEPA Analyst **NICK ZAVALAS**
 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: Thunder Brook Dam Removal		
Street: West Mountain Road		
Municipality: Cheshire, MA	Watershed: Hoosic River (South Branch)	
Universal Transverse Mercator Coordinates: Easting: 73.179219 Northing: 42.536142	Latitude: 42° 33' 50.5" N Longitude: 73° 10' 44" W	
Estimated commencement date: 9/1/2011	Estimated completion date: 9/30/2011	
Approximate cost: \$250,000	Status of project design: 75%complete	
Proponent: Town of Cheshire		
Street: 80 Church Street		
Municipality: Cheshire	State: MA	Zip Code: 01225
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Nick Wildman		
Firm/Agency: MA Div. of Ecological Restoration	Street: 251 Causeway St., Suite 400	
Municipality: Boston	State: MA	Zip Code: 02114
Phone: 617-626-1527	Fax: 617-626-1505	E-mail: nick.wildman@state.ma.us

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 301 CMR 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 Division of Ecological Restoration: \$2,150
Massachusetts Environmental Trust: \$26,000

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, Wetlands Protection Act,

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 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
LAND				<input checked="" type="checkbox"/> Order of Conditions <input type="checkbox"/> Superseding Order of conditions <input 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 Connection1 Extension Permit <input checked="" type="checkbox"/> Other Permits <i>(including Legislative Approvals) – Specify:</i> *Chapter 253 (ODS) *BRP WS36 (MADEP)
Total site acreage	0.72			
New acres of land altered		0.72		
Acres of impervious area	0.01	-0.01	0	
Square feet of new bordering vegetated wetlands alteration		≤ 200 SF		
Square feet of new other wetland alteration		LUWB = -946 SF BANK = -233 LF		
Acres of new non-water dependent use of tidelands or waterways		NA		
STRUCTURES				
Gross square footage	NA	NA	NA	
Number of housing units	NA	NA	NA	
Maximum height (in feet)	NA	NA	NA	
TRANSPORTATION				
Vehicle trips per day	NA	NA	NA	
Parking spaces	NA	NA	NA	
WATER/WASTEWATER				
Gallons/day (GPD) of water use	NA	NA	NA	
GPD water withdrawal	NA	NA	NA	
GPD wastewater generation1 treatment	NA	NA	NA	
Length of water/sewer mains (in miles)	NA	NA	NA	

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 _____) No

A review of the Natural Heritage and Endangered Species GIS database revealed the presence of estimated and priority habitats downstream of the Thunder Brook Dam project area. Correspondence with the Natural Heritage and Endangered Species (NHESP) staff [see Appendix F] confirmed these areas are considered to be habitat for **Longnose** sucker (*Catostomus catostomus*), Bailey's sedge (***Carex baileyi***), and Franks lovegrass (***Eragrostis frankii***).

Based on informal discussion between the Division of Ecological Restoration and NHESP, it is unlikely that the project area is habitat for either the listed sedge or grass. This project will be designed and implemented to enhance the habitat for the **longnose** sucker and associated coldwater fish species.

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 No

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

Yes (Specify _____) No See Appendix F

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.*)

Thunder Brook, located in Cheshire, Massachusetts, is a high-gradient tributary to Kitchen Brook which flows into the South Branch of the Hoosic River. The Brook's watershed encompasses a portion of Mount Greylock's eastern slope and is dominated by forest with some agricultural uses. Thunder Brook is a coldwater stream supporting a population of native Eastern brook trout (***Salvelinus fontinalis***). The Thunder Brook Dam was originally built to supply water to the town but has not been in use for that purpose since the 1970s. The dam blocks all upstream migration of fish and aquatic wildlife. Like the dam, the 7-foot-diameter culvert located 1,000 feet downstream of the dam also poses a barrier to fish and wildlife passage under most flows.

The Town of Cheshire (dam and culvert owner), working with local and state project partners, has identified the potential for the removal of the Thunder Brook Dam and replacement of the downstream culvert as an opportunity to enhance the health of the Thunder Brook, Kitchen Brook, and Hoosic River system. Implementation of the proposed restoration project would open up 2.4 miles of coldwater habitat for natural fish passage.

Preliminary Design Analysis

The following work was undertaken by the Town's consultant in order to develop a preliminary design:

- Collection and review of available data and resource information was undertaken;
- Field reconnaissance was undertaken to characterize the aquatic habitat, adjacent shoreline vegetation habitat, and the channel's geomorphic characteristics in the vicinity of the Thunder Brook Dam and the downstream culvert;
- The structural condition, dimensions, and materials of the dam and culvert were documented ;
- Topographic survey was performed;
- On-the-ground survey of the dam, abutments, channel bathymetry, and channel cross sections

- was completed for use in hydraulic analysis;
- Hydrologic data for Thunder Brook was analyzed to evaluate parameters such as depth and velocity under existing and proposed conditions; and
 - Sediment probes, field identification of sediment substrate, and sample collection and analysis for physical and chemical constituents was undertaken.

Overview of Existing Conditions

The Thunder Brook Dam (aka Water Department Dam, ID # **MA01844**) is a run-of-river masonry and concrete structure with an approximate structural height of 18 feet and a length of 55 feet. The MA Office of Dam Safety considers this a Significant Hazard Dam in fair-to-poor condition. The dam forms an approximately 3,600-square-foot impoundment that is rapidly filling with sediment from upstream. Because of the hydrology and forested nature of the watershed the impoundment does not seem to provide a warm-water fishery as evidenced by the presence of native brook trout in the impoundment.

Thunder Brook passes through a culvert under a town-maintained unimproved road (*i.e.*, dirt) approximately 1,000 feet downstream from the dam. This corrugated metal pipe culvert has a diameter of 7 feet, and was apparently installed by the Town of Cheshire during the last 10 years after the previous culvert washed-out during a high-flow event. The downstream end of the culvert is set above the elevation of the Brook's bed and stands as a barrier to the upstream movement of aquatic organisms under most flows. Furthermore, the culvert inlet invert is set approximately 1.5 ft below the upstream channel invert due to accumulated alluvial material and woody debris.

Sediment Quality

Approximately 1,000 cubic yards of sedimented material are estimated to lie behind the Thunder Brook Dam. This material ranges in character from organic muck to large boulders. Chemical analysis results were compared to the 401 Water Quality Standards and to freshwater ecosystem guidelines. A summary of sediment sample analysis results can be found in Appendix C. No exceedences of freshwater ecosystem risk¹ were found. Only methyl tertiary butyl ether (MBTE) was found in excess of MCP **S-1** Human Health benchmarks. Further sampling and analysis to confirm the character of the sediments is planned for summer of 2010. A sediment management approach has been developed for the project.

Alternatives Analysis

An alternatives analysis was performed by project partners to determine the most feasible and prudent means of achieving the defined project goals and objectives. The goals of the project are to reconnect 2.4 miles of coldwater fish habitat, to maintain the appropriate sediment transport regime, and reduce operations and maintenance costs. Public safety and impacts to riparian landowners were also evaluated in the context of the structural integrity of the existing dam and the potential for a catastrophic breach. The Thunder Brook Dam is not currently equipped with any fish passage facilities. Several methods are available to provide fish passage at dams, including the installation of fish ladders and roughened ramps, creation of bypass channels, and dam removal. Not all sites are suited for every method. Site conditions often limit the choice of method. In addition, not all methods have equal fish passage efficiency. Fish ladders and roughened ramps, for instance, tend to have more limited passage efficiency and can be biased toward stronger swimmers. Only dam removal would allow for the natural passage of all coldwater fish found in Thunder Brook. In addition only dam removal would eliminate a barrier to the natural sediment regime.

Dam removal most favorably meets the identified project goals and objectives for Thunder Brook. Removal would restore natural fish habitat connectivity, establish a more natural sediment regime, and reduce operations and maintenance costs. The proposed span replacing the culvert will also require substantially less maintenance. After removal of the dam, the risk to downstream landowners from a catastrophic dam failure would be eliminated. For these reasons, dam removal is the recommended alternative. See Appendix E for a more complete analysis of alternatives.

¹ "Probable Effects Concentrations" as published in MacDonald et al., 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. *Arch Environ Contam Toxicol*, 39:20-31