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.: 14386
MEPA Analyst: Aisling Eglington
Phone: 617-626-1024

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: **Lake Ripple Dredging Project**		
Street: **Providence Road (Rte. 122) and Worcester Street (Rte. 140)**		
Municipality: **Grafton**	Watershed: **Quinsigamond River**	
Universal Tranverse Mercator Coordinates: **N4677029m, E277489m**	Latitude: **42° 12' 49" N** Longitude: **71° 41' 45" W**	
Estimated commencement date: **June 2009**	Estimated completion date: **October 2010**	
Approximate cost: **$700,000**	Status of project design: **75** %complete	
Proponent: **Town of Grafton**		
Street: **30 Providence Road**		
Municipality: **Grafton**	State: **MA**	Zip Code: **01510**
Name of Contact Person From Whom Copies of this ENF May Be Obtained: **Thomas Jenkins, P.E.**		
Firm/Agency: **Baystate Environmental Consultants, Inc.**	Street: **296 North Main Street**	
Municipality: **East Longmeadow**	State: **MA**	Zip Code: **01028**
Phone: **413-525-3822** Fax: **413-525-8348**	E-mail: **tjenkins@b-e-c.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. 9782 (in 1994)) ☐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): **Funding appropriated in Chapter 122 of the Acts of 2006, through DCR**

Are you requesting coordinated review with any other federal, state, regional, or local agency?
☐Yes(Specify_____) ☒No

List Local or Federal Permits and Approvals: **401 Water Quality Certification; Order of Conditions**

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

☐ Land	☒ Rare Species	☒ Wetlands, Waterways, & Tidelands
☐ Water	☐ Wastewater	☐ Transportation
☐ Energy	☐ Air	☐ Solid & Hazardous Waste
☐ ACEC	☐ Regulations	☐ Historical & Archaeological Resources

Summary of Project Size & Environmental Impacts	Existing	Change	Total	State Permits & Approvals
LAND				☒ Order of Conditions ☐ Superseding Order of Conditions ☐ Chapter 91 License ☒ 401 Water Quality Certification ☐ MHD or MDC Access Permit ☐ Water Management Act Permit ☐ New Source Approval ☐ DEP or MWRA Sewer Connection/ Extension Permit ☒ Other Permits (*including Legislative Approvals*) – Specify: **-USEPA/MADEP-Construction General Permit**
Total site acreage	**68.8±**			
New acres of land altered		**15.7**		
Acres of impervious area	**0.0**	**0**	**0.0**	
Square feet of new bordering vegetated wetlands alteration		**0**		
Square feet of new other wetland alteration		**422,530**		
Acres of new non-water dependent use of tidelands or waterways		**0**		
STRUCTURES				
Gross square footage	**0**	**0**	**0**	
Number of housing units	**0**	**0**	**0**	
Maximum height (in feet)	**0**	**0**	**0**	
TRANSPORTATION				
Vehicle trips per day	**0**	**0**	**0**	
Parking spaces	**0**	**0**	**0**	
WATER/WASTEWATER				
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: **Estimated and Priority Habitat**) ☐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_____) ☒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 Site

Lake Ripple is 63±-acre eutrophic lake located in the Town of Grafton, in Worcester County, Massachusetts, 1.4 miles south of I-90 (Figure 1). Lake Ripple is the fourth in a series of five impoundments of the Quinsigamond River. Dense aquatic vegetation has dominated the eastern lobes of this lake since at least the mid-1980s and the Town of Grafton has been seeking to reduce aquatic vegetation in the lake to provide increased water quality and warm water fishery habitat. In 1984, a Diagnostic/Feasibility Study (D/F Study) was commissioned by the Town in agreement with the Massachusetts Department of Environmental Quality Engineering (DEQE) and its Division of Water Pollution Control. The Feasibility portion of the study focused on potential means to reduce aquatic vegetation to better manage water quality within Lake Ripple and improve the recreational opportunities at the lake. After evaluating the alternatives, the final 1986 D/F Study recommended *"...a combination of dredging and weed removal ... to improve flushing and circulation in the eastern lobe* [of the lake], *reduce shore vegetation, and increase the aesthetic character attractiveness of the lake for recreational uses."*

Following completion of the D/F Study, in 1992 the Town acquired grant funding to assist with the engineering, permitting, and partial construction of the dredging process. The hydraulic dredging methodology was identified as being most appropriate for the Lake Ripple setting, because the area to be dredged contains deep organic deposits which cannot support the weight of excavation equipment. The chosen technique also avoids the need for an environmentally-damaging lake drawdown, as the dredging work can be accomplished with no change to the lake water level. The Town acquired rights to an existing wooded area adjacent to the lake and owned by the Grafton Land Trust, to be used as a containment basin to receive the dredged materials for dewatering. It was envisioned that the containment basin would be filled and then the basin would receive an intermediate restoration, emptying it of the accumulated dredged materials and restoring it to receive the next phase of dredged materials. Following the final phase of dredging, the containment basin site will be restored to a wet meadow, with the dredged materials remaining in place.

In 1994, the Lake Ripple Dredging Project received a Certificate from the Secretary of Environmental Affairs indicating that the project complied with the Massachusetts Environmental Policy Act (MEPA). Massachusetts DEP issued a Water Quality Certification for the dredging project on May 29, 1996, and the Conservation Commission also issued an Order of Conditions permitting the dredging project. The containment area was constructed in 1997. In 1999, Phase I of the dredging program was conducted, and approximately 45,000 cubic yards of sediment was removed from Lake Ripple and deposited within the containment basin, filling it almost to the brim. Since the Phase I dredging, the lake sediment was removed and the containment basin restored for use, prior to commencing the next phase of the dredging program. The Town of Grafton recently acquired funding to initiate Phase II of the dredging project to finish restoring the eastern portion of the lake. The MEPA office was contacted to discuss the Phase II dredging program, and MEPA indicated that the prior MEPA Certificate was expired and the project should undergo new MEPA review – not incorporating the previous impacts (Attachment I: MEPA Correspondence).

Additionally, since the initial permitting in 1990s, known habitat of rare and endangered species protected under the Massachusetts Endangered Species Act (MESA) within Lake Ripple and the Quinsigamond River has been indicated on the MassGIS datalayers. In the spring of 2007, representatives of the Proponent and BEC met with Misty-Anne Marold of NHESP in Westborough, MA. The Phase II dredging program was described, and NHESP urged the Proponent to incorporate into the Project design adequate controls to eliminate any adverse impacts, such as turbidity, to the species of concern (bridle shiner and triangle floater mussel). The project design has incorporated a 15-foot buffer to the shoreline to protect fisheries spawning areas, and a turbidity curtain around the hydraulic dredge to reduce the potential for any turbidity in the lake or in downstream habitat. The Proponent submitted a MESA Project Review Application to NHESP for evaluation of the potential impacts to the two State-listed species that inhabit or live downstream of Lake Ripple, and NHESP determined that the Project as presented would not result in a take of rare species (Attachment I). Subsequently, in 2008 the habitat areas were reduced, and the Project area is no longer within known habitat. See Figure 2 (2007 MNHESP mapping) and Figure 2a (2008 MNHESP mapping). Mitigation negotiated with MNHESP in 2007-2008 remains a part of the proposed Project.

Proposed Project

The Proponent is currently proposing to hydraulically dredge 9.1± acres of Land Under Water in Lake Ripple. The proposed dredging program extends the area dredged in1999 to the north and west, adhering generally to the dredging master plan previously developed by BEC subsequent to the 1984 Diagnostic/Feasibility Study (D/F Study), commissioned by the Proponent in agreement with the Massachusetts Department of Environmental Quality Engineering (DEQE) and its Division of Water Pollution Control). The hydraulic dredging is proposed to occur in 2009 during the spring and summer, similar to Phase I.

Hydraulic dredging maintains the water level of the lake during excavation, returning pumped water to the lake after treatment to remove sediments. Hydraulic dredging utilizes a barge-mounted, movable boom with a cutterhead and

suction line attached. The barge will be crane-lifted from the boat launch area east of the lake's dam directly onto the lake, which will avoid bank disturbance. Within the dredge footprint, the cutterhead will be lowered to the pond's bottom, and a sediment-water slurry (approximately 80-90% water) will be pumped out of the pond through a suction line. The dredged slurry material will be dewatered by gravity dewatering using the open-settling containment basin west of the lake.

The containment basin consists of an excavated and bermed holding area in which the slurry is allowed to separate by gravity into sediment and water. The containment basin was sized to provide adequate quiescent time to allow the solids to settle, plus provide storage volume for the sediments removed. The supernatant will be decanted from the containment basin, and polymer flocculent, similar to those used in the drinking water treatment process, will be added. The flow will then enter the clarification basin where flocculation and further settlement will occur. Clarified water will be monitored carefully for turbidity before it is eventually discharged back into Lake Ripple, and any water discharged for return to the lake will meet all water quality requirements. Dewatered sediments will be reused as a grading and planting medium in the containment basin, in accordance with the 401 Water Quality Certification (to be obtained). After the dewatering process is complete, the dredged material will be excavated and regraded, and the basin area will be restored to its prior condition.

Mitigation of Impacts

Hydraulic dredging completely avoids the need for draining the lake, thus avoiding the negative environmental impacts, such as fish kills, associated with complete pond drawdown. Turbidity generated by the cutterhead is typically minimized by the suction created by the pump line attached to the dredge that immediately removes the sediments once they are dislodged from the pond bottom by the cutterhead. Past observations have indicated no significant increases in turbidity in the water column as close as fifty feet from active dredging; however, a turbidity curtain will be installed around the dredge to ensure turbidity is contained. The installation of a turbidity curtain and the established shoreline buffer will help to minimize any impact on local fish populations, including the bridle shiner. The turbidity curtain will also avoid potential water quality impacts to the downstream triangle floater mussel habitat. The impacts of hydraulic dredging on lake aquatic wildlife will largely be mitigated naturally. Water fowl and beaver have the ability to avoid the dredge and may only be temporarily displaced by it. Fish also have the ability to avoid the activity of the dredge. Although it is impossible to completely avoid removing benthic organisms from the dredged area, the potential for repopulation of the dredged area is certain. The proposed dredging program encompasses a limited portion of the lake (Attachment IV Figure 6 Proposed Conditions), therefore leaving a significant undisturbed stock of organisms which will repopulate the lake bottom after the dredging.