

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

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 Executive Office of Environmental Affairs

MEPA Analyst: *Purvi Patel*

Phone: 617-626-*1029*

## Notice of Project Change

The information requested on this form must be completed to begin MEPA Review of a NPC in accordance with the provisions of the Massachusetts Environmental Policy Act and its implementing regulations (see 301 CMR 11.10(1)).

EEA # 15282		
Project Name: Paradise Pond Sediment Management Protocol		
Street Address: Smith College, Facilities Management - 126 West Street		
Municipality: Northampton	Watershed: Mill River	
Universal Transverse Mercator Coordinates:	Latitude: 42° 19' 05"	
	Longitude: -72° 38' 30"	
Estimated commencement date: Spring 2019	Estimated completion date: Spring 2029	
Project Type: Sediment Management	Status of project design: %complete	
Proponent: Smith College Facilities Management		
Street Address: 126 West Street		
Municipality: Northampton	State: MA	Zip Code: 01060
Name of Contact Person: Briscoe B. Lang, P.W.S.		
Firm/Agency: Pare Corporation	Street Address: 8 Blackstone Valley Place	
Municipality: Lincoln	State: RI	Zip Code: 02865
Phone: 401-334-4100	Fax: 401-334-4108	E-mail: blang@parecorp.com

With this Notice of Project Change, are you 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

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?

11.03(2)(b)2 (potential); 11.03(3)(b)1.f.; 11.03(3)(b)3\*

Which State Agency Permits will the project require?

OOC, DEP WQC, NHESP MESA Review, DEP Ch. 91

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

\*Please note that this threshold will not be exceeded at any one event; however, multiple events of redistributing 3,000± cy of material may total or exceed 10,000 cy over the course of several years.

**PROJECT INFORMATION**

In 25 words or less, what is the project change? The project change involves . . .  
Changes to the Sediment Management Protocol (SMP) for Paradise Pond at Smith College resulting in a larger project area and revised sediment redistribution methodology.  
See full project change description beginning on page 3.

Date of publication of availability of the ENF in the Environmental Monitor: (Date: 11/5/14 )

Was an EIR required?  Yes  No; if yes,  
was a Draft EIR filed?  Yes (Date: )  No  
was a Final EIR filed?  Yes (Date: )  No  
was a Single EIR filed?  Yes (Date: )  No

Have other NPCs been filed?  Yes (Date(s): )  No

If this is a NPC solely for lapse of time (see 301 CMR 11.10(2)) proceed directly to **ATTACHMENTS & SIGNATURES**.

**PERMITS / FINANCIAL ASSISTANCE / LAND TRANSFER**

List or describe all new or modified state permits, financial assistance, or land transfers not previously reviewed: **dd w/ list of State Agency Actions (e.g., Agency Project, Financial Assistance, Land Transfer, List of Permits)**

Combined Ch 91/WQC Dredge; WPA Order of Conditions; NHESP Simplified Review; ACOE Individual Permit

Are you requesting a finding that this project change is insignificant? A change in a Project is ordinarily insignificant if it results solely in an increase in square footage, linear footage, height, depth or other relevant measures of the physical dimensions of the Project of less than 10% over estimates previously reviewed, provided the increase does not meet or exceed any review thresholds. A change in a Project is also ordinarily insignificant if it results solely in an increase in impacts of less than 25% of the level specified in any review threshold, provided that cumulative impacts of the Project do not meet or exceed any review thresholds that were not previously met or exceeded. (see 301 CMR 11.10(6))  Yes  No; if yes, provide an explanation of this request in the Project Change Description below.

**FOR PROJECTS SUBJECT TO AN EIR**

If the project requires the submission of an EIR, are you requesting that a Scope in a previously issued Certificate be rescinded?

Yes  No; if yes, provide an explanation of this request N/A.

If the project requires the submission of an EIR, are you requesting a change to a Scope in a previously issued Certificate?

Yes  No; if yes, provide an explanation of this request N/A.

**SUMMARY OF PROJECT CHANGE PARAMETERS AND IMPACTS**

Summary of Project Size & Environmental Impacts	Previously reviewed	Net Change	Currently Proposed
<b>LAND</b>			
Total site acreage	6.66	+3.14	9.8
Acres of land altered	0	0	0
Acres of impervious area	0	0	0
Square feet of bordering vegetated wetlands alteration	0	0	0
Square feet of other wetland alteration	290,000± of LUW	+119,000±	409,000± LUW
Acres of non-water dependent use of tidelands or waterways	0	0	0
<b>STRUCTURES</b>			
Gross square footage	0	0	0
Number of housing units	0	0	0
Maximum height (in feet)	0	0	0
<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

Does the project change involve any **new or modified**:

1. conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?  Yes  No

2. release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?  Yes  No

3. impacts on Rare Species?  Yes  No

4. demolition of all or part of 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

5. impact upon an Area of Critical Environmental Concern?  Yes  No

If you answered 'Yes' to any of these 5 questions, explain below:

**PROJECT CHANGE DESCRIPTION** (attach additional pages as necessary). The project change description should include:

- (a) a brief description of the project as most recently reviewed
- (b) a description of material changes to the project as previously reviewed,
- (c) if applicable, the significance of the proposed changes, with specific reference to the factors listed 301 CMR 11.10(6), and
- (d) measures that the project is taking to avoid damage to the environment or to minimize and mitigate unavoidable environmental impacts. If the change will involve modification of any previously issued Section 61 Finding, include a draft of the modified Section 61 Finding (or it will be required in a Supplemental EIR).


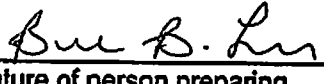
Please refer to the attached Project Change Description

**ATTACHMENTS & SIGNATURES**

**Attachments:**

1. Secretary's most recent Certificate on this project
2. Plan showing most recent previously-reviewed proposed build condition
3. Plan showing currently proposed build condition
4. Original U.S.G.S. map or good quality color copy (8-1/2 x 11 inches or larger) indicating the project location and boundaries
5. List of all agencies and persons to whom the proponent circulated the NPC, in accordance with 301 CMR 11.10(7)

**Signatures:**

8/24/18		8/29/2018	
<b>Date</b>	<b>Signature of Responsible Officer or Proponent</b>	<b>Date</b>	<b>Signature of person preparing NPC (if different from above)</b>

Gary J. Hartwell, Project Manager	BRISCOE LANG
<b>Name (print or type)</b>	<b>Name (print or type)</b>
Smith College	PARE CORPORATION
<b>Firm/Agency</b>	<b>Firm/Agency</b>
c/o Facilities Management	8 BLACKSTONE VALLEY PLACE
<b>126 West Street</b>	<b>Street</b>
<b>Street</b>	<b>Street</b>
Northampton, MA 01063	LINGEN, RI 02865
<b>Municipality/State/Zip</b>	<b>Municipality/State/Zip</b>
413-585-2441	401 334-4100
<b>Phone</b>	<b>Phone</b>

Smith College  
Paradise Pond Sediment Management Protocol

Smith College continually monitors and evaluates the success of efforts to maintain a suitable pond depth across Paradise Pond. Over the past several years, different sediment management practices have been implemented to determine the most cost-effective solution while generating the fewest ecological impacts.

The 2014 Sediment Management Protocol (SMP) outlined steps to maintain a 3-foot depth across the entirety of Paradise Pond. The primary method of sediment redistribution was to mechanically move approximately 500 to 1,000 cubic yards of sediments from the highest point of accumulation to the anticipated flow channel along the northern side of the pond during the low water period in the spring of 2015. Pending the success of that sediment being mobilized via sluicing efforts, Smith intended to conduct a larger scale redistribution (approximately 10,000 cubic yards of sediment) during the summer of 2016.

With knowledge of findings from the 2014 SMP, Smith has modified the protocol by increasing the area of sediment redistribution and revising the methods for the redistribution itself.

### **Summary of Findings**

Implementation of Phases I and II of the previously authorized SMP have added greatly to Smith's understanding of sediment transport dynamics through Paradise Pond. Based on the results of the experimental mobilization and sluicing to date Smith has determined the following:

- Sediment transport under high flow conditions is more efficient in shallower water.
- Approximately 1,000 cfs is necessary to move bedload through the impoundment.
- Sediment that has been mechanically relocated to the upper reach of the submerged channel is not moving downstream toward the sluice gate as efficiently as anticipated and therefore much less material is being sluiced than had been expected.
- Sediment near the gate will sluice more effectively under high flow conditions.
- Sediment in the upper reaches of the submerged channel will mobilize efficiently toward the sluice gate when the pond is drawn down under low flow conditions. The gate can be operated such that the sediment can be retained in the pond and not discharged in an uncontrolled fashion.
- No adverse impacts attributable to Phase I and II have been observed in downstream areas.
- The Dwarf Wedge Mussel was not observed in downstream areas during the monitoring undertaken to date.

### **Modifications to the Sediment Management Protocol**

Considering these findings Smith proposes to modify the sediment management program as set forth below.



### Refined Project Goals

- Maintain two feet of year-round water depth throughout the entire pond to meet academic, aesthetic; and recreational needs (reduced from originally proposed 3' depth).
- Improve ecological conditions downstream by restoring historic sediment budget.
- Minimize frequency of drawdowns for sediment management purposes.
- Balance annual sediment input and release.
- The originally proposed Phase III mechanical mobilization of 10,000 cy of sediment is no longer proposed.

### Refined Sediment Management Methodology

Smith proposes to retain those portions of the approved SMP that are effective and appropriate. These include the following:

- *Monitoring:* Smith proposes to continue their monitoring program as set forth in the original Sediment Management Protocol document, and to expand the monitoring to include sediment inputs into the pond.
- *Adaptive Management:* The atypical sediment management effort is driven by experiment, measurement, and adjustment and requires a significant degree of flexibility to arrive at a set of practices that achieve the goals for the project and are repeatable.
- *Reporting (Symposia):* Smith will continue to report the results of the prior year activities at annual symposia. Invitees will continue to include regulatory agency representatives, Smith faculty and staff, and the general public. The two symposia held to date have been well attended and have proven to be an effective means of interacting with the regulatory agencies, communicating program progress, and providing valuable educational opportunities for students.

The refined sediment management methodology will consist of the following:

1. *Sediment Redistribution:* If all necessary permits have been obtained, immediately after October 1, 2019, Smith will initiate a drawdown to one half normal pool depth to allow for mechanical redistribution of accumulated sediment throughout the pond bottom (approximately 1,500-3,000 cubic yards). Sediment above elevation 134 will be redistributed to deeper areas in the northern and northwestern portions of the impoundment. During the drawdown, sediment within the channel will scour and mobilize toward the sluice gate area where it will be available for high-flow sluicing. The proposed changes to the SMP enlarge the project area from 6.66 acres to 9.8<sup>1</sup> acres, which includes the area of the plunge pool. Although the total project area is increasing, the total cubic yards of redistributed sediment is decreasing significantly from over 10,000 cubic yards to 1,500 to 3,000 cubic yards of sediment to be sluiced per year. The applicant is requesting authorization to complete sediment redistribution operations during the time periods

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<sup>1</sup> Because the locations for sediment redistribution are likely to change over time Smith is requesting authorization to perform the above activities on any portion of the pond bottom for a duration of at least 10 years. Therefore, the Area of Impact totals approximately 9.8 acres, including the area of the downstream plunge pool.

between October and May of any year.

2. *Water Level Restoration:* The current storage area within the impoundment is approximately 53,222 cubic yards (1,436,994 cubic feet). Because Smith must maintain a flow rate of 26 cfs through the gate to the downstream area, the total flow captured within the impoundment (capture flow) = Inflow Rate (cfs) - 26. The length of time needed to refill the impoundment in hours =  $1,436,994 / (\text{capture flow} * 3600 \text{ seconds})$ . Depending on flow rate at the time of refill, restoration of full pool will take between approximately 2 and 100 hours. A tabulated summary of refill time vs. flow rate is provided on the attached Exhibit A. Because of system dynamics and flow restrictions when refilling, there is commonly a waiting period before refilling (flows are often below 26 cfs in June) However Exhibit A shows that even if capturing only 4 cfs, refilling is possible in only 4 days.

Dewatering and refilling activities associated with the sediment redistribution operations are anticipated to take between 4 and 6 weeks, as these activities are entirely dependent on seasonal water levels within the Mill River.

Anticipated turbidity resulting from the proposed work, measured at the downstream Lamont Bridge, is expected to be similar to that experienced during the sediment redistribution undertaken in 2016.

Month (2016)	Average sidescan turbidity (NTU)
June (Pre-Distribution)	4.92
July (Sediment Redistribution)	12.06
August (Post-Redistribution)	7.05

3. *High Flow Sluicing:* Following mechanical redistribution of sediment, Smith will open the low-flow outlet during periods of high flow to promote downstream sluicing of accumulated sediments.
4. *Frequency:* Drawdown and redistribution would occur approximately every year to maintain the 2-foot water depth. Large storms resulting in rapid sediment accumulation may require interim drawdown/redistribution events. On average the Pond accumulates 1800 cubic yards of sediment per year.

The ultimate intent of this program will be to achieve a minimum pond depth of 2 feet at normal pool (elevation 136) throughout Paradise Pond.