

Transportation  
Land Development  
Environmental  
Services



imagination | innovation | energy Creating results for our clients and benefits for our communities

*Vanasse Hangen Brustlin, Inc.*

September 11, 2014

Ms. Marylouise Pallotta McDermott, Chairperson  
Watertown Conservation Commission  
149 Main Street  
Watertown, Massachusetts 02472

Re: Notice of Intent  
Greenough Boulevard Greenway Enhancement Project  
Watertown, Massachusetts

Dear Ms. McDermott and Commissioners,

On behalf of the Lawrence and Lillian Foundation, Vanasse Hangen Brustlin, Inc. (VHB) submits the attached Notice of Intent (NOI) for work associated with proposed improvements along Greenough Boulevard in Watertown, Massachusetts (the Project). The purpose of the Project is to reconfigure the Greenough Boulevard Greenway, narrowing the pavement and reducing the amount of impervious surface, address existing issues with stormwater drainage, increase the vegetated area adjacent to the Charles River and reconstruct and widen the existing bike path along the Charles River. The proposed work has been coordinated with and reviewed by the landowner, Massachusetts Department of Conservation and Recreation (DCR), which will also oversee the construction.

The Project includes work within Areas Subject to Protection under the Massachusetts Wetlands Protection Act (WPA) and the Watertown Wetlands Ordinance. Work will take place within the Riverfront Area, 100-foot buffer zone of the Bank pursuant to the WPA and the locally regulated 50-foot No Build Zone and the 150-foot buffer zone. The Project complies with the performance standards set forth in the WPA and the Ordinance for the proposed work in jurisdiction.

In compliance with the WPA and the Ordinance, notification to abutters regarding this NOI has been made by certified return receipt mail on this date. A copy of the abutter notification form and list of abutters are enclosed with the NOI.

A check made payable to the Town of Watertown in the amount of \$387.50 is enclosed for payment of the town's share of the state filing fee. A check made payable to the Commonwealth of Massachusetts in the amount of \$362.50 has been sent directly to the DEP Lock Box for payment of the state's share of this filing fee.

Regarding the filing fee pursuant to the Watertown Wetlands Ordinance, we respectfully request the Commission waive the local fee for this project. The Applicant, the Lawrence and Lillian Solomon Foundation, is a non-profit organization that does not have a financial connection with the subject property or the property owner (the DCR). The project represents an enhancement of the resource areas and parkland along the Charles River in Watertown and is being proposed solely as a benefit to the communities of Watertown and Cambridge. Funding for the construction will be by the Lawrence and Lillian Solomon Foundation supplemented by private donations.

101 Walnut Street, Post Office Box 9151  
Watertown, Massachusetts 02471-9151  
617.924.1770 • FAX 617.924.2286  
www.vhb.com

If you have any questions or need any additional information, please feel free to contact me at (617) 924-1770 or via email at gcrouch@vhb.com.

Regards,  
VANASSE HANGEN BRUSTLIN, INC.



Gene F. Crouch  
Senior Environmental Scientist

Attachment: Greenough Boulevard Greenway Enhancement Project Notice of Intent

cc: Lawrence and Lillian Foundation – H. Nolan  
DCR – K. Whalen and J. Orfant  
DEP Northeast Regional Office



# *Greenough Boulevard Greenway Expansion Project*

Watertown,  
Massachusetts

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Prepared for **The Lawrence and Lillian Solomon Foundation**  
10 Laurel Avenue  
Wellesley, Massachusetts 02481  
(781) 431-1440

Prepared by  ***Vanasse Hangen Brustlin, Inc.***  
Transportation, Land Development, Environmental Services  
101 Walnut Street  
P.O. Box 9151  
Watertown, Massachusetts 02471  
(617) 924-1770

September 2014



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# Notice of Intent Forms

©

- 
- WPA Form 3
  - Wetland Fee Transmittal Form
  - Copy of Filing Fee Checks
  - Property Information





Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands  
**WPA Form 3 - Notice of Intent**  
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:  
eDEP Transaction #:677408  
City/Town:WATERTOWN

### A. General Information

#### 1. Project Location:

a. Street Address	GREENOUGH BOULEVARD	c. Zip Code	02472
b. City/Town	WATERTOWN	e. Longitude	71.14655W
d. Latitude	42.36391N	g. Parcel/Lot #	NONE
f. Map/Plat #	NONE		

#### 2. Applicant:

Individual  Organization

a. First Name	HERBERT	b. Last Name	NOLAN
c. Organization	LAWRENCE AND LILLIAN FOUNDATION		
d. Mailing Address	10 LAUREL AVENUE		
e. City/Town	WELLESLEY	f. State	MA
h. Phone Number	781-431-1440	i. Fax	
		g. Zip Code	02481
		j. Email	

#### 3. Property Owner:

more than one owner

a. First Name	KEVIN	b. Last Name	WHALEN
c. Organization	DEPARTMENT OF CONSERVATION AND RECREATION		
d. Mailing Address	251 CAUSEWAY STREET		
e. City/Town	BOSTON	f. State	MA
h. Phone Number		i. Fax	
		g. Zip Code	02116
		j. Email	

#### 4. Representative:

a. First Name	GENE	b. Last Name	CROUCH
c. Organization	VANASSE HANGIN BRUSTLIN, INC		
d. Mailing Address	101 WALNUT STREET P.O. BOX 9151		
e. City/Town	WATERTOWN	f. State	MA
h. Phone Number	617-924-1770	i. Fax	
		g. Zip Code	02472
		j. Email	gcrouch@vhb.com

#### 5. Total WPA Fee Paid (Automatically inserted from NOI Wetland Fee Transmittal Form):

a. Total Fee Paid	750.00	b. State Fee Paid	362.50	c. City/Town Fee Paid	387.50
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#### 6. General Project Description:

ENHANCE THE GREENOUGH BOULEVARD GREENWAY WITH NARROWING OF THE ROADWAY AND RECONSTRUCTION OF THE BIKE PATH ALONG THE CHARLES RIVER BETWEEN ARSENAL STREET IN WATERTOWN AND THE ELLIOT BRIDGE IN CAMBRIDGE. THE PROJECT WILL REDUCE PAVEMENT AND INCREASE PREVIOUS SURFACE. IN ADDITION, STORMWATER MANAGEMENT WILL BE IMPROVED WITH NEW CATCH BASINS AND GRASSED SWALES. NEW LANDSCAPING WILL INCLUDE TREE AND SHRUB PLANTINGS.

#### 7a. Project Type:

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Single Family Home                | 2. <input type="checkbox"/> Residential Subdivision                  |
| 3. <input type="checkbox"/> Limited Project Driveway Crossing | 4. <input type="checkbox"/> Commercial/Industrial                    |
| 5. <input type="checkbox"/> Dock/Pier                         | 6. <input type="checkbox"/> Utilities                                |
| 7. <input type="checkbox"/> Coastal Engineering Structure     | 8. <input type="checkbox"/> Agriculture (eg., cranberries, forestry) |



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9.  Transportation

10.  Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1.  Yes  No If yes, describe which limited project applies to this project:

2. Limited Project 310 CMR 10.53(6) CONSTRUCTION OF A BIKE PATH IN RIVERFRONT AREA 310 CMR 10.53(3)(F)  
 ROADWAY MAINTENANCE

8. Property recorded at the Registry of Deeds for:

a. County:

b. Certificate:

c. Book:

d. Page:

**B. Buffer Zone & Resource Area Impacts (temporary & permanent)**

I. Buffer Zone & Resource Area Impacts (temporary & permanent):

This is a Buffer Zone only project - Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.

2. Inland Resource Areas: (See 310 CMR 10.54 - 10.58, if not applicable, go to Section B.3. Coastal Resource Areas)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land under Waterbodies and Waterways	1. Square feet	2. square feet
	3. cubic yards dredged	
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	Charles River	
	1. Name of Waterway (if any)	
	2. Width of Riverfront Area (check one)	
	<input type="checkbox"/> 25 ft. - Designated Densely Developed Areas only	
	<input type="checkbox"/> 100 ft. - New agricultural projects only	
	<input checked="" type="checkbox"/> 200 ft. - All other projects	
	3. Total area of Riverfront Area on the site of the proposed project	350647 square feet
	4. Proposed Alteration of the Riverfront Area:	
	33212 a. total square feet	1970 c. square feet between 100 ft. and 200 ft.
	31242 b. square feet within 100 ft.	



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5. Has an alternatives analysis been done and is it attached to this NOI?  Yes  No  
 6. Was the lot where the activity is proposed created prior to August 1, 1996?  Yes  No

3.Coastal Resource Areas: (See 310 CMR 10.25 - 10.35)

Resource Area Size of Proposed Alteration Proposed Replacement (if any)

a. <input type="checkbox"/> Designated Port Areas	Indicate size under	Land under the ocean below,
b. <input type="checkbox"/> Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes, below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab, crea.
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4.Restoration/Enhancement

Restoration/Replacement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please entered the additional amount here.

- a. square feet of BVW b. square feet of Salt Marsh

5.Projects Involves Stream Crossings

Project Involves Streams Crossings

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.



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a. number of new stream crossings

b. number of replacement stream crossings



### C. Other Applicable Standards and Requirements

#### Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage of Endangered Species program (NHESP)?

a.  Yes  No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species  
Program  
Division of Fisheries and Wildlife  
100 Hartwell Street, Suite 200  
West Boylston, MA, 01583

b. Date of map: FROM MAP VIEWER

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18)...

c. Submit Supplemental Information for Endangered Species Review \* (Check boxes as they apply)

1.  Percentage/acreage of property to be altered:

(a) within Wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2.  Assessor's Map or right-of-way plan of site

3.  Project plans for entire project site, including wetland resource areas and areas outside of wetland jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work \*\*

a.  Project description (including description of impacts outside of wetland resource area & buffer zone)

b.  Photographs representative of the site

c.  MESA filing fee (fee information available at: <http://www.mass.gov/eca/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/mesa-fee-schedule.html>)

Make check payable to "Natural Heritage & Endangered Species Fund" and mail to NHESP at above address

*Projects altering 10 or more acres of land, also submit:*

d.  Vegetation cover type map of site

e.  Project plans showing Priority & Estimated Habitat boundaries

d. OR Check One of the following

1.  Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <http://www.mass.gov/eca/agencies/dfg/dfw/laws-regulations/cmr/321-cmr-1000-massachusetts-endangered-species-act.html#10.14>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2.  Separate MESA review ongoing.

a. NHESP Tracking Number

b. Date submitted to NHESP

3.  Separate MESA review completed.

Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

\* Some projects not in Estimated Habitat may be located in Priority Habitat, and require NHESP review...



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2. For coastal projects only, is any portion of the proposed project located below the mean high waterline or in a fish run?

a.  Not applicable - project is in inland resource area only

b.  Yes  No

If yes, include proof of mailing or hand delivery of NOI to either:

South Shore - Cohasset to Rhode  
 Island, and the Cape & Islands:

North Shore - Hull to  
 New Hampshire:

Division of Marine Fisheries -  
 Southeast Marine Fisheries Station  
 Attn: Environmental Reviewer  
 1213 Purchase street - 3rd floor  
 New Bedford, MA 02740-6694

Division of Marine  
 Fisheries -  
 North Shore Office  
 Attn: Environmental  
 Reviewer  
 30 Emerson Avenue  
 Gloucester, MA 01930

If yes, it may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office.  
 For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

a.  Yes  No

If yes, provide name of ACEC (see instructions to  
 WPA Form 3 or DEP Website for ACEC locations).  
**Note:** electronic filers click on Website.

b. ACEC Name

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the  
 Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

a.  Yes  No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L.c. 131, §  
 40A) or the Coastal Wetlands Restriction Act (M.G.L.c. 130, § 105)?

a.  Yes  No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

a.  Yes, Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05  
 (6)(k)-(q) and check if:

1.  Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook  
 Vol.2, Chapter 3)

2.  A portion of the site constitutes redevelopment

3.  Proprietary BMPs are included in the Stormwater Management System

b.  No, Explain why the project is exempt:

1.  Single Family Home

2.  Emergency Road Repair

3.  Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family  
 housing project) with no discharge to Critical Areas.

**D. Additional Information**

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

**Online Users:** Attach the document transaction number (provided on your receipt page) for any of the following information you  
 submit to the Department by regular mail delivery.



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands  
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MassDEP File #:  
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1.  USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2.  Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.
3.  Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
4.  List the titles and dates for all plans and other materials submitted with this NOI.

**a. Plan Title:**

GREENOUGH  
BOULEVARD  
GREENWAY  
EXPANSION

**b. Plan Prepared By:**

VHB, INC.

**c. Plan Signed/Stamped By:**

**c. Revised Final Date: e. Scale:**

September 2014

5.  If there is more than one property owner, please attach a list of these property owners not listed on this form.
6.  Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7.  Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8.  Attach NOI Wetland Fee Transmittal Form.
9.  Attach Stormwater Report, if needed.



Massachusetts Department of Environmental Protection  
 Bureau of Resource Protection - Wetlands  
**WPA Form 3 - Notice of Intent**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
 MassDEP File #:  
 eDEP Transaction #: 677408  
 City/Town: Watertown

**E. Fees**

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

<u>285042</u>	<u>September 9, 2014</u>
2. Municipal Check Number	3. Check date
<u>285019</u>	<u>September 9, 2014</u>
4. State Check Number	5. Check date
<u>Vanasse Hangen Brustlin, Inc.</u>	
6. Payer name on check: First Name	7. Payer name on check: Last Name

**F. Signatures and Submittal Requirements**

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(e).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

<u>[Signature]</u>	<u>9/9/2014</u>
1. Signature of Applicant	2. Date
<u>[Signature]</u>	<u>9/8/14</u>
3. Signature of Property Owner (if different)	4. Date
<u>[Signature]</u>	<u>9/9/2014</u>
5. Signature of Representative (if any)	6. Date

**For Conservation Commission:**

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

**For MassDEP:**

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a copy of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

**Other:**

If the applicant has checked the "yes" box in Section C, Items 1-3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



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Bureau of Resource Protection - Wetlands  
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**Massachusetts Department of Environmental Protection**  
 Bureau of Resource Protection - Wetlands  
**WPA Form 3 - Notice of Wetland Fee Transmittal**  
**Form**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Are you exempted from Fee?

**Note:** Fee will be exempted if you are one of the following:

- City/Town/County/District
- Municipal Housing Authority
- Indian Tribe Housing Authority
- MBTA

State agencies are only exempt if the fee is less than \$100

**Fees**

Activity Type	Activity Number	Activity Fee	RF Multiplier	Sub Total
E.) INLAND LIMITED PROJECTS MINUS ROAD CROSSINGS AND AGRICULTURE;	1	500.00	RFA MULTIPLIER 1.5	750.00

City/Town share of filing fee	State share of filing fee	Total Project Fee
\$387.50	\$362.50	\$750.00

VANASSE HANGEN BRUSTLIN, INC.  
101 WALNUT STREET • PO BOX 9151  
WATERTOWN, MASSACHUSETTS 02471

CITIZENS BANK  
MASSACHUSETTS  
5-7017/2110

285042

CHECK DATE

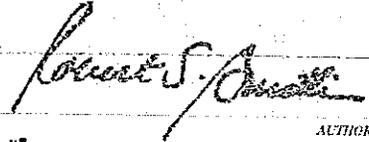
September 9, 2014

Three Hundred Eighty Seven and 50/100

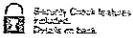
AMOUNT

\$387.50

Town of Watertown  
149 Main Street  
Watertown, MA 02472



<sup>MP</sup>  
AUTHORIZED SIGNATURE



⑈ 285042⑈ ⑆ 211070175⑆ 1130161371⑈

VANASSE HANGEN BRUSTLIN, INC.  
101 WALNUT STREET • PO BOX 9151  
WATERTOWN, MASSACHUSETTS 02471

CITIZENS BANK  
MASSACHUSETTS  
5-7017/2110

285019

CHECK DATE

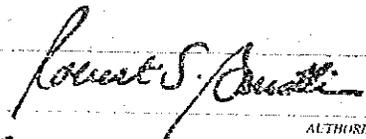
September 9, 2014

Three Hundred Sixty Two and 50/100

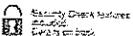
AMOUNT

\$362.50

Commonwealth of Massachusetts  
DEP-Department of Environmental Protection  
P.O. Box 4062  
Boston, MA 02211



<sup>MP</sup>  
AUTHORIZED SIGNATURE



⑈ 285019⑈ ⑆ 211070175⑆ 1130161371⑈

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## Property Information

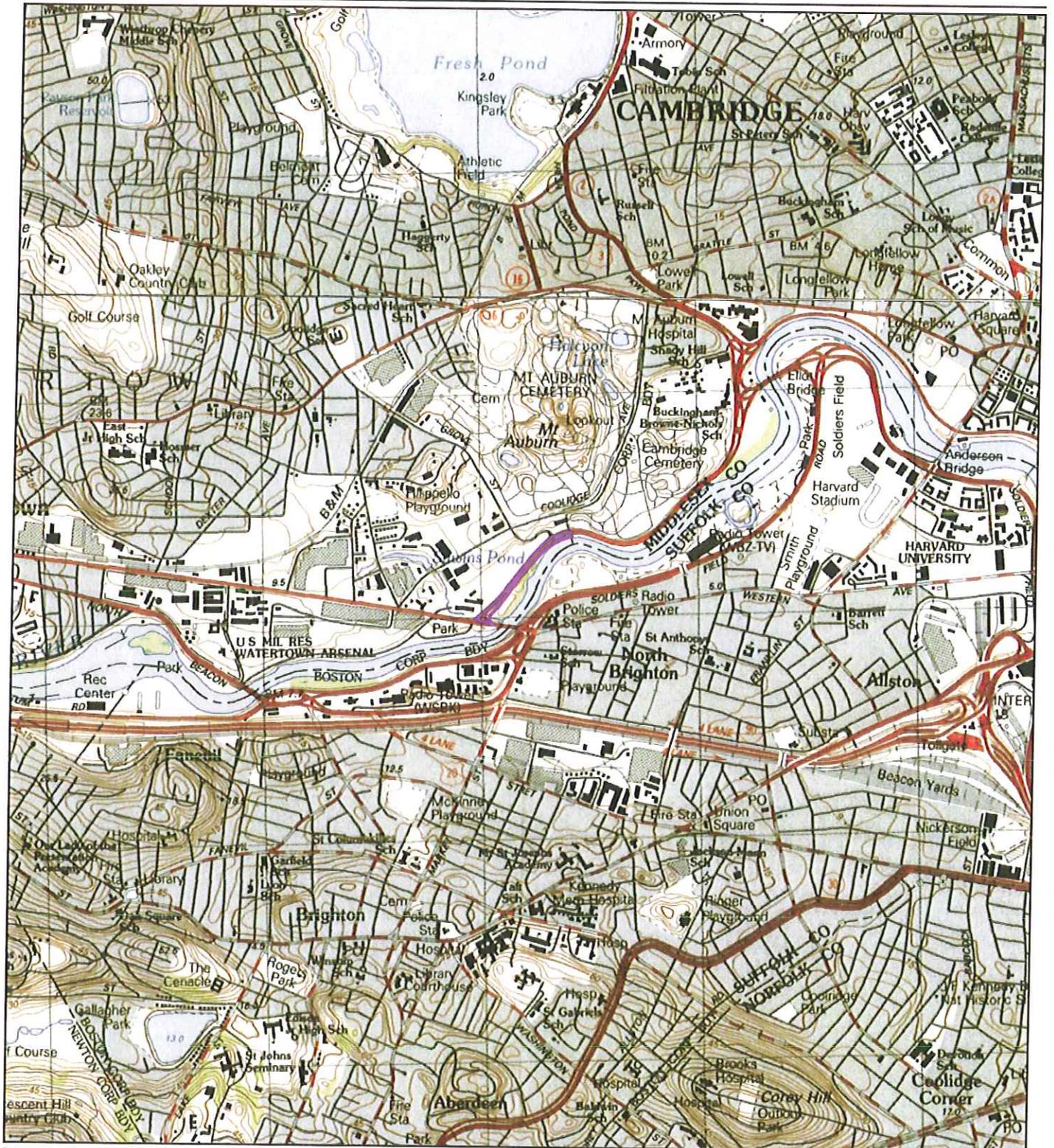
Parcel ID	Address	Owner	Area (Ac)
None	Greenough Boulevard	Department of Conservation and Recreation	N/A

# Notice of Intent Figures

®

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- Figure 1 – Site Location Map
  - Figure 2 – Aerial Map
  - Figure 3 – NHESP Map
  - Figure 4 – FEMA FIRM





Source: USGS 2001

**Vanasse Hangen Brustlin, Inc.**

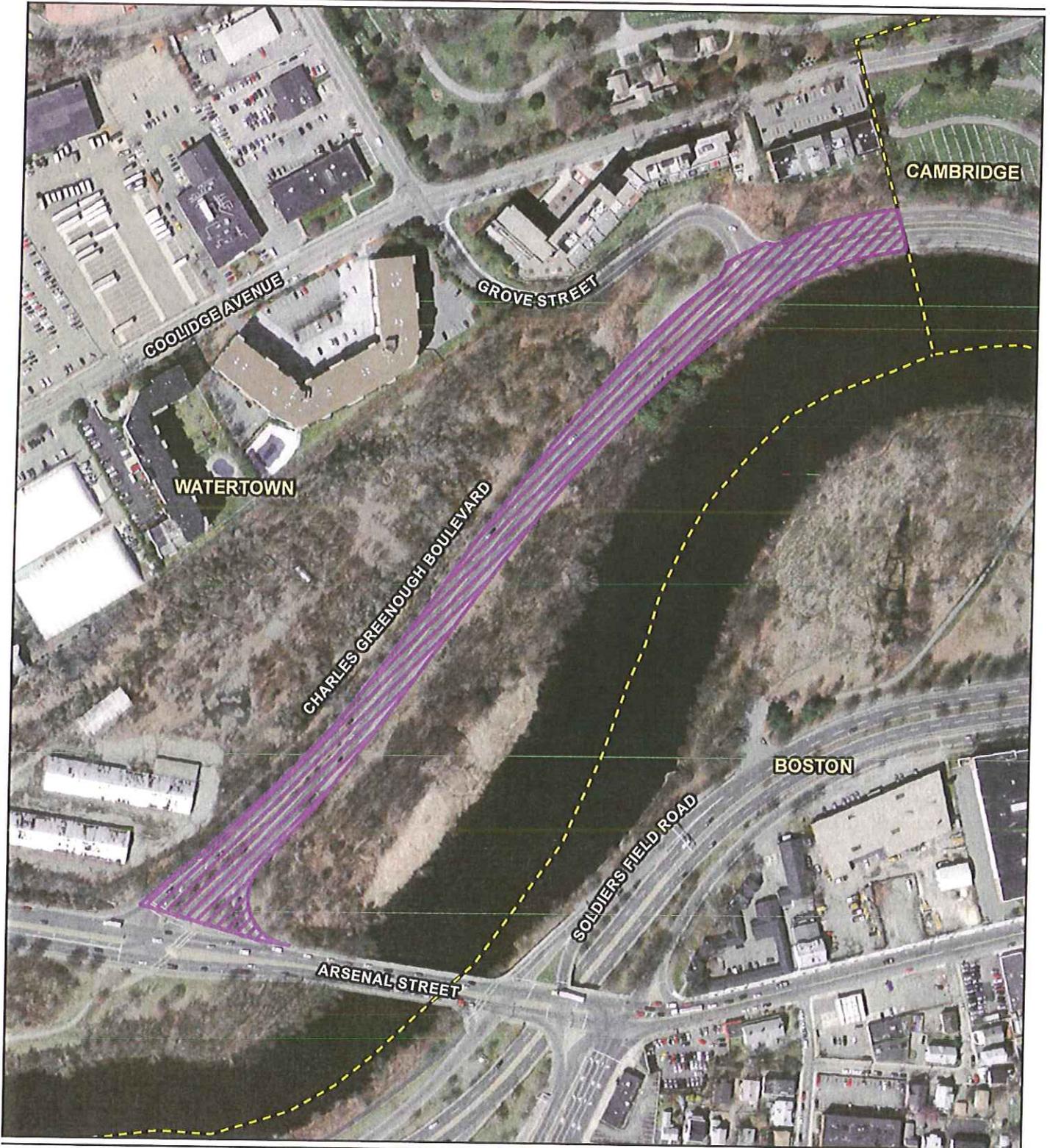
 Project Area

Figure 1  
Site Location Map  
Greenough Boulevard Greenway Expansion  
Watertown, Massachusetts



0 2,000 4,000 Feet





Source: MassGIS 2008

Vanasse Hangen Brustlin, Inc.

-  Project Area
-  Town Boundaries

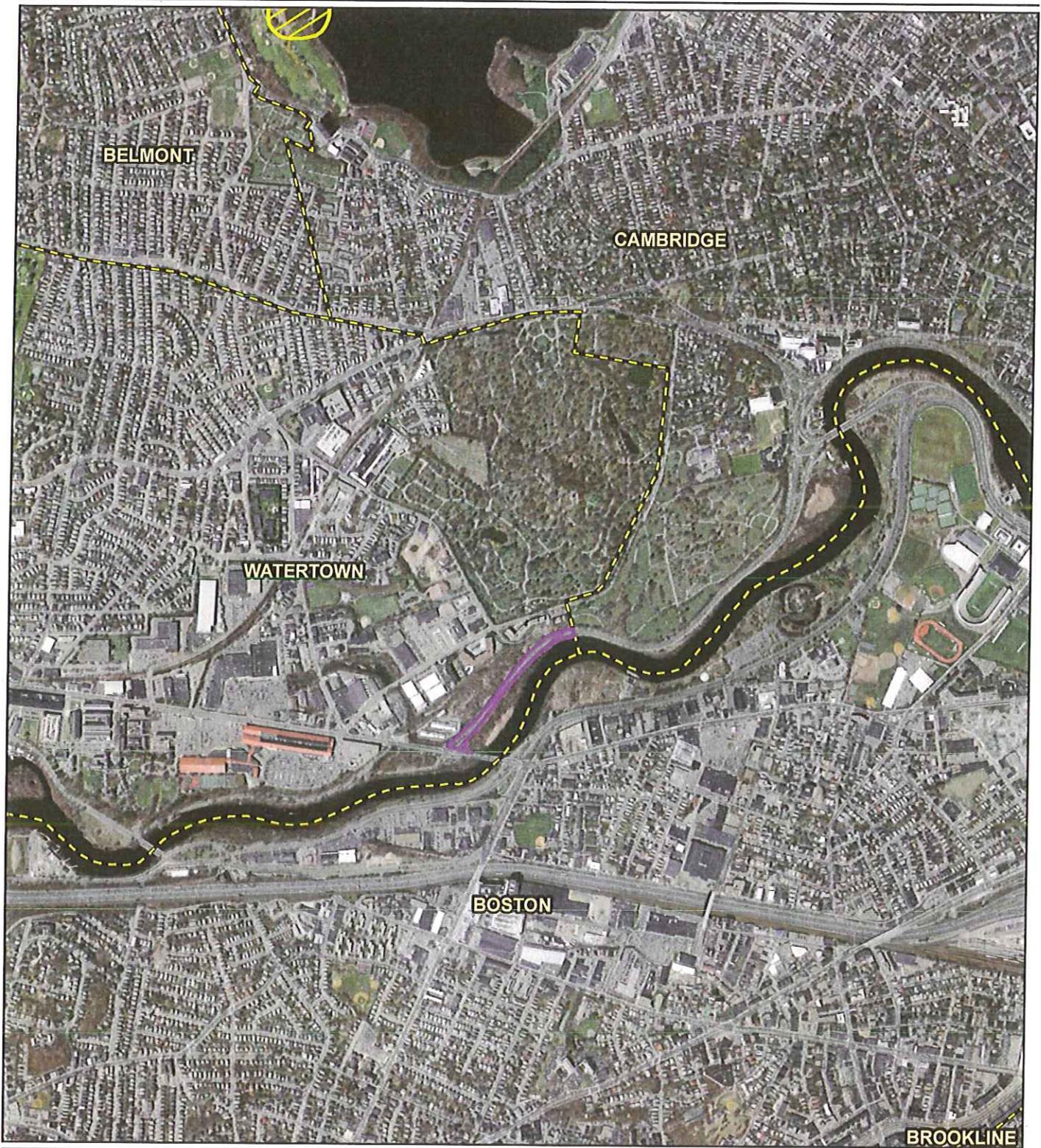
Figure 2  
Aerial Map  
Greenough Boulevard Greenway Expansion  
Watertown, Massachusetts



0 250 500 Feet

A horizontal scale bar with markings at 0, 250, and 500 feet.





Source: MassGIS 2008

Vanasse Hangen Brustlin, Inc.

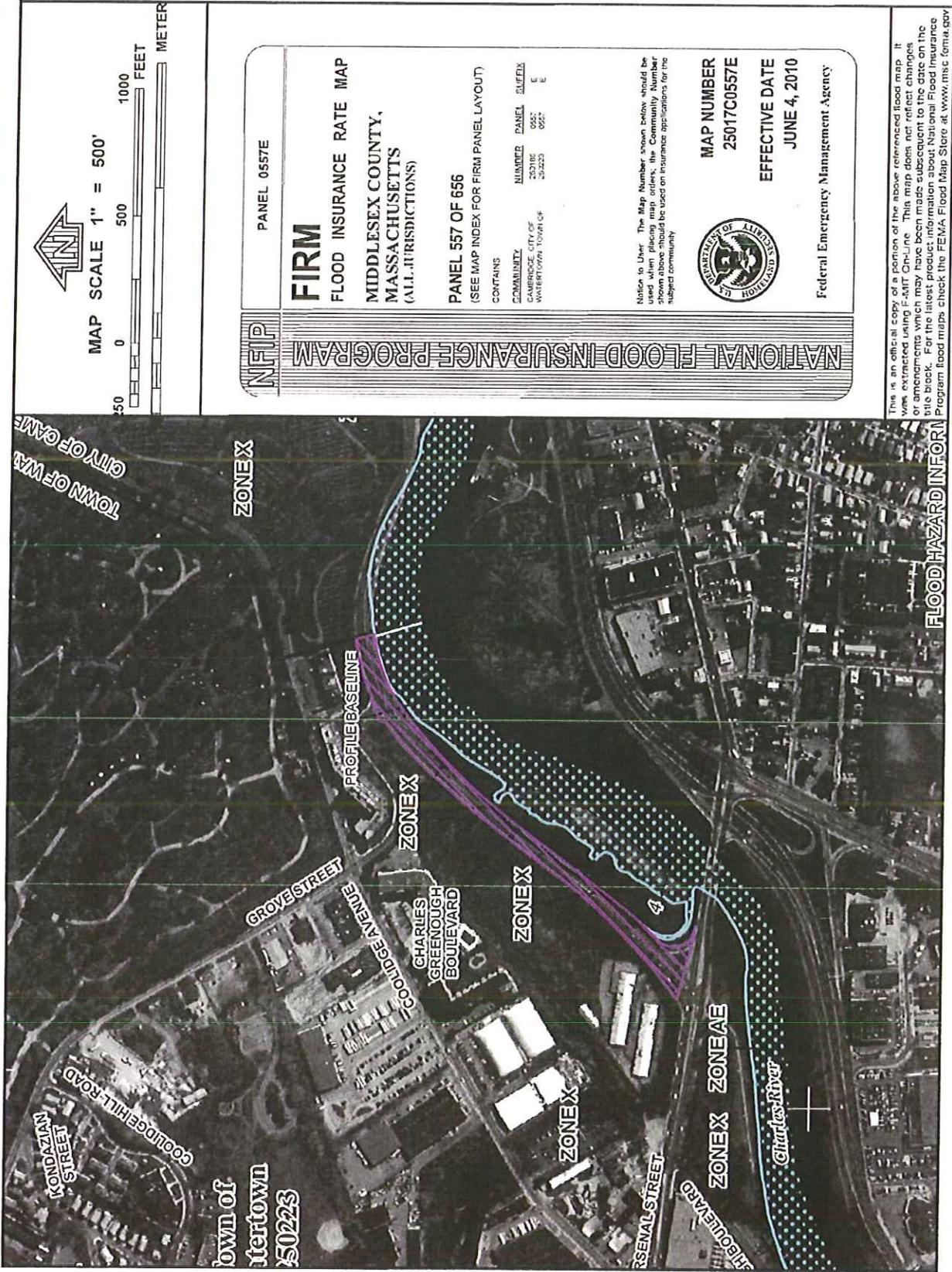
-  Project Area
-  Town Boundaries
-  Priority Habitats of Rare Species
-  Estimated Habitats of Rare Wildlife
-  Certified Vernal Pools

Figure 3  
NHESP Map  
Greenough Boulevard Greenway Expansion  
Watertown, Massachusetts



0 1,500 3,000  
Feet





Vanasse Hangen Brustlin, Inc.

Figure 4  
 FEMA FIRM Map  
 Greenough Boulevard Greenway Expansion  
 Watertown, Massachusetts

Project Area





# Attachment A

## Notice of Intent Narrative

©

- 
- Introduction
  - Site Description
  - Work Description
  - Mitigation Measures
  - Regulatory Compliance
  - Summary



# Attachment A

## Notice of Intent Narrative

This Notice of Intent (NOI) is filed pursuant to the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40), and its implementing regulations (310 CMR 10.00) and the Town of Watertown Wetlands Ordinance (Chapter XV).

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### Introduction

The Applicant, The Lawrence and Lillian Solomon Foundation, proposes to improve the Greenough Boulevard Greenway in the Town of Watertown, Massachusetts. The purpose of this project is to enhance the public safety along the riverfront by providing a fully accessible multi-use path. The proposed work has been in close coordination with the owner of the Greenough Boulevard, the Department of Conservation and Recreation (DCR). The project will take place on DCR land along the Charles River Reservation. The project consist of narrowing a portion of the existing roadway from four lanes of traffic to two lanes of traffic and widening the vegetated Greenway and existing bike path. The proposed project is expected to have a net benefit to the area and the surrounding community. The project will increase pervious cover along the Charles River by creating an extended vegetated buffer between the Charles River and bike path as well as between the road and the bike path. Work will occur in or near Areas Subject to Protection under the Massachusetts Wetlands Protection Act (WPA). These resources include Bordering Vegetated Wetlands (BVW), Bank, Land Under Water Bodies and Waterways, Bordering Land Subject to Flooding, and Riverfront Area. Portions of the proposed work will occur within occur within the WPA Riverfront Area, the 100-foot WPA buffer zone and the Watertown Wetland Ordinance Riverfront Area, 50-foot No Build Zone and 150-foot buffer zone.

The work qualifies as a limited project under WPA regulations at 310 CMR 10.53(6), *"The construction, rehabilitation, and maintenance of footpaths, bikepaths, and other pedestrian or non-motorized vehicle access to or along riverfront areas but outside other resource areas..."* and for maintenance and improvement of public roadways (310 CMR 10.53(3)(f))... *"Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems."*

Wetland resource areas will be protected from impacts during construction through the implementation of an erosion and sedimentation control program. This program

includes provisions to minimize areas of disturbance through phasing and sequencing, limit erosion through stabilization, and prevent sediment from leaving the site by installing structural controls.

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## Site Description

Greenough Boulevard is four-lane highway in the southeastern corner of Watertown, Massachusetts. The Boulevard has a northeast/southwest orientation and contains a grassed median at the eastern and western project limits. The Boulevard runs parallel to the Charles River for approximately 1.1 miles and connects Arsenal Street in the Town of Watertown with the Eliot Bridge and Memorial Drive in Cambridge. The project is southeast of a fenced in parcel and northwest of the Charles River and is approximately 0.36 miles (1900 feet) long. The limit of work begins at the intersection of Greenough Boulevard and Arsenal Street and continues northeast through the Grove St. intersection to the Cambridge/Watertown town line. Speed limits along the Boulevard range from 25-40 MPH. Along southwest side of Greenough Boulevard beginning at Arsenal Street, is Dr. Paul Dudley White Bike Path that is little more than a gravel roadway shoulder but becomes an 8-foot wide paved path continuing 700 feet southeast to the Cambridge/Watertown town line. Guardrails are present along the bike path from the Cambridge/Watertown town line, southwest approximately 375 feet.

Wetlands in the vicinity of the project includes the Charles River (a perennial river) and a vegetated wetland adjacent to the Charles River near the southern project limit. Swains Pond Brook, another perennial river, runs along Arsenal Street and flows through a culvert under Greenough Boulevard at the Arsenal Street intersection and joins with the Charles River southeast of the project limits. Figures 1 and 2 provide a site location map and an aerial map that depict the existing Project area.

According to the most recently available data provided by the Massachusetts Natural Heritage and Endangered Species Program<sup>1</sup>, no Priority Habitat of Rare Species, Estimated Habitat of Rare Wildlife, or Certified Vernal Pools occur on in the project limits (Figure 3). The project is not located within an Area of Critical Environmental Concern (ACEC)<sup>2</sup>. According to the Massachusetts Department of Environmental Protection (DEP), the project is not within an area designated as an Outstanding Resource Water<sup>3</sup>.

According to Natural Resources Conservation Service<sup>4</sup> soil survey maps, the project limits are primarily underlain by Udorthents, Wet substratum. A small portion at the intersection of Grove St. is underlain by Udorthents, Sandy. The project is relatively

<sup>1</sup> NHESP, 2008. Massachusetts Natural Heritage Atlas. 13th Edition.

<sup>2</sup> DCR, 2009. *Area of Critical Environmental Concern*

<sup>3</sup> DEP, 2010. *Designated Outstanding Resource Waters of Massachusetts*.

<sup>4</sup> Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey.

flat with elevations ranging approximately 4 to 9 feet above sea level. The most recently issued Flood Insurance Rate Map (FIRM)<sup>5</sup> for the Town of Watertown (Figure 4.1) indicates that a portion of the property is within mapped floodplain for the 100-year storm event (Elevation 4.0 feet).

Wetland resource areas on/near the site are described below.

## Wetland Resource Areas

Wetlands on/adjacent to the site were delineated in December 2013 by environmental scientists with Vanasse Hangen Brustlin, Inc. (VHB) in accordance with methods developed by the DEP<sup>6</sup> and the U.S. Army Corps of Engineers<sup>7</sup>. The following sections of this narrative describe the wetlands and identify resource areas that are regulated under the WPA Regulations (310 CMR 10.00).

The state-regulated wetland resource areas identified on/adjacent to the property include Bordering Vegetated Wetland, Bank, Bordering Land Subject to Flooding (BLSF), and Riverfront Area. These resource areas are defined under the WPA Regulations (310 CMR 10.00) as follows:

- ▶ **Bordering Vegetated Wetlands (BVW):** As defined at 310 CMR 10.55(2)(a), *"Bordering Vegetated Wetlands are freshwater wetlands which border on creeks, rivers, streams, ponds and lakes."* BVW boundaries are defined in 310 CMR 10.55(2)(c) as *"... the line within which 50% or more of the vegetation community consists of wetland plants and saturated or inundated conditions exist."*
- ▶ **Bank:** As defined at 310 CMR 10.54 (2)(a), *"a Bank is the portion of the land surface, which normally abuts and confines a water body."* The boundaries are defined in 310 CMR 10.54(2)(c) as *"The upper boundary of Bank is the first observable break in slope or the mean annual high water level, whichever is lower. The lower boundary of a Bank is the mean annual low flow level."*
- ▶ **Land Under Water Bodies and Waterways (LUWW):** as defined a 310 CMR 10.56(2)(a), *"Land Under Water Bodies and Waterways is the land beneath any creek, river, stream, pond or lake. Said land may be composed of organic muck or peat, fine sediments, rocks or bedrock."* LUWW boundaries are defined in 310 CMR 10.56(2)(c) as *"...the boundary of Land Under Water Bodies and Waterways is the mean annual low water level."*
- ▶ **Bordering Land Subject to Flooding (BLSF):** As defined by 310 CMR 10.57(2)(a)(1), BLSF is *"an area with low, flat topography adjacent to and inundated by*

<sup>5</sup> Federal Emergency Management Agency, 2010. FIRM, Middlesex County, Massachusetts. Map Number 25017C0557E.

<sup>6</sup> DEP, 1995. Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act.

<sup>7</sup> USACE, 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0.

*flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland.* The boundary of BLSF is defined in 310 CMR 10.57(2)(a)(3) as, "...the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm." Areas identified by FEMA to be within the 100-year floodplain are regulated as BLSF.

**Riverfront Area:** As defined at 310 CMR 10.58 (a)(3) & 10.58(a)(3)(b), Riverfront Area is "the area of land between a river's mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away."

Wetlands on/adjacent to the project are summarized in the table below and are described in more detail in the following sections of this attachment.

**Table 1 - Wetland Resource Areas**

Wetland	Flag Numbers	Type	Resource Areas
Charles River	BF1-190 through BF1-234 and	Riverine Lower Perennial Unconsolidated Shoreline, Cobble-Gravel (R2US1)	Bank, LUWW, BLSF, Riverfront Area
Wetland 2	WF2-107 through WF2-123 connecting WF2-200 through WF2-210 connecting WF2-302 through WF2-306	Palustrine Persistent Emergent (PEM1)	BVW
Sawins Pond Brook	BF3-100 through BF3-103	Riverine Upper Perennial Unconsolidated Bottom (R2UB)	Bank, LUWW, Riverfront Area
Wetland 4	WF4-100 through WF4-112 connecting to BF4-113	Palustrine Persistent Emergent (PEM1)	BVW
Wetland 5	WF5-100 through WF5-106	Palustrine Persistent Emergent (PEM1)	BVW

Source: VHB, 2014

## Charles River

The Bank of the Charles River is bounded to the north by several upland islands adjacent to Greenough Boulevard and the Dr. Paul Dudley White Bike Path. The Charles is a Lower Perennial Riverine system with an unconsolidated bottom. The Charles River along the project limits has a southeast to northwest orientation,

flowing to the northwest. The uplands islands along the Charles River are separated by three intermittent streams (starting left to right; BF2-100 through BF2-106/BF2-307 through BF2-313, BF2-212 through BF2-212/BF2-300 through BF2-301, and BF1-209 through BF1-212) and Wetland 2. Swains Pond Stream, a perennial stream, originating from Wetland 3 west of Greenough Boulevard flows through a culvert and outlets at flag BF1-233, near the end of the project limits

The boundary of the Charles River was flagged with blue flagging numbered BF1-190 through BF1-234, with flagging starting at the Watertown/Cambridge town line and continuing southwest to the Arsenal Street Bridge. The top of the bank was delineated at the first break in slope at the edge of the channel and therefore is the beginning of the Riverfront Area. BVW was observed abutting intermittent stream channels but not perennial stream channels (Charles River or Swains Pond Brook).

Vegetation on the bank and buffer zone adjacent to the Charles River contains Common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), glossy buckthorn (*Frangula alnus*), Japanese knotweed (*Fallopia japonica*), gray birch (*Betula populifolia*), sumac, red oak (*Quercus rubra*), and crab apple (*Malus sp.*).

Wetland Resource areas associated with the Charles River are Bank, Land Under Water Bodies and Waterways, Bordering Land Subject to Flooding, and Riverfront Area pursuant to the WPA. Accordingly, a 100-foot buffer zone extends from the limits of Bank under the WPA.

According to the FEMA Flood Insurance Rate Map for the area (see Figure 4), the 100-year flood elevation in the project area is Elevation 4 feet (NAVD88) and is associated with the Charles River. Graphically the limit of the floodplain is depicted on the FEMA mapping as extending into the work areas. However, based on detailed topographic mapping for the project, the floodplain elevation of 4 feet has been depicted on the project plans. Based on this mapping, the project is near but does not impact BLSF. Therefore, the project area is outside of the limits of floodplain.

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## Wetland 2

Wetlands 2 is a narrow vegetated wetland area along the west side of Greenough Boulevard and separated from the Charles River by an upland island. Wetland 2 is a palustrine emergent wetland with persistent vegetation. This wetland receives drainage from Greenough Boulevard through multiple catch basins along the roadway. Wetland 2 drains through three intermittent streams (identified with flagging BF2-100 through BF2-106/BF2-307 through BF2-313; BF2-212 through BF2-212/BF2-300 through BF2-301; and BF1-209 through BF1-212) that drain to the west and to the Charles River.

Wetland 2 is bound by pink flagging numbered WF2-107 to WF2-123 and WF2-200 through WF2-210 and continue with flagging WF2-302 to WF2-306. Vegetation

associated with Wetland 2 primarily includes Common reed (*Phragmites australis*) and tree of heaven (*Ailanthus altissima*).

Wetland 2 is associated with several intermittent channels and therefore is regulated as BVW pursuant to the WPA. The intermittent streams are regulated as Bank. Accordingly, a 100-foot buffer zone extend from the limits of BVW or Bank under the WPA.

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### Sawins Pond Brook

Wetland 3 includes the limits of Sawins Pond Brook. The Bank of the Brook was delineated with flagging BF3-100 through BF3-103 on the west side of Greenough Boulevard. The brook runs in a west to east direction and flows through a 60-inch reinforced concrete pipe culvert approximately 350-feet long under the intersection of Greenough Boulevard and Arsenal Street. The stream Banks of the brook are man-made and well defined with well vegetated banks. Vegetation along the stream consists of Japanese knotweed (*Fallopia japonica*, Norway maple (*Acer platanoides*), and tree of heaven (*Ailanthus altissima*).

Wetland 3 is regulated as Bank and Land Under Water Bodies and Waterways with a 200-foot Riverfront Area and 100-foot buffer zone extending from the Banks pursuant to the Wetlands Protection Act.

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### Wetland 4 and 5

Wetlands 4 and 5 are along the northwest side of Greenough Boulevard and delineated with flags WF4-100 through WF4-112 and WF5-100 through WF5-106. These wetlands area Palustrine persistent wetlands with emergent vegetation (PEM1). Both Wetlands 4 and 5 are in areas previously disturbed by roadway development. Wetland 4 is a linear wetland along the northwest side of Greenough Boulevard and abuts a chain link fence of an adjacent property undergoing restoration. Wetland 5 lies between Greenough Boulevard and Grove Street, just southwest of the Grove Street intersection. Vegetation in Wetland 4 primarily consists of common reed (*Phragmites* sp.), Japanese knotweed (*Fallopia japonica*), and sumac. Wetland 5 consists of cattail (*Typha latifolia*), black willow (*Salix nigra*), and purple loosestrife (*Lythrum salicaria*).

Wetlands 4 and 5 are regulated as BVW and a 100-foot buffer zone extends from wetland limit pursuant to the WPA.

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## Buffer Zone

The WPA regulations (310 CMR 10.02(2)(b)) establish a 100-foot buffer zone from the limits of BVW and Bank, as described above. Buffer zone associated with the Charles River consists of roadway and vegetated areas. Buffer zone to Wetland 2 consists of roadway and existing bike path to the west. Buffer zone to Wetland 3 consists of Arsenal Street and Greenough Boulevard, and a vegetated roadway shoulders. Buffer zone to Wetlands 4 and 5 consist of Greenough Boulevard, a narrow vegetated traffic island, and managed grasses with small areas of landscaping.

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## Locally Regulate Buffer Zones

In addition to the 100-foot buffer zone regulated under the WPA, the Watertown Wetlands Ordinance regulates a 50-foot No Build Zone and a 150-foot buffer zone. Both of these buffer zones associated with the wetland resource areas within the project limits. These buffer zones consist of paved roadway, wooded roadway edge and paved bike path.

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## Work Description

The Project proposes to improve the Greenough Boulevard Greenway to enhance public enjoyment and safety along the waterfront. Greenough Boulevard will be narrowed four lanes to two, travel lanes with designated turning lanes at Arsenal Street and Grove Street intersections. Typical cross sections of the project are provided in the Project Plans (Attachment D). The bike path will be widened to 10-feet and re-aligned to improve the configuration and separation from the roadway. The bike path includes a full depth pavement with 2 to 3-foot shoulders. At the intersection of Arsenal Street and Greenough Boulevard on the Charles River side, the bike path will be moved away from the road slightly. A vegetated grass strip a minimum of 8 feet wide will be created to buffer pedestrians from the roadway traffic and guardrails will be installed along the roadway edge opposite the Grove Street intersection.

Drainage improvements will be conducted along Greenough Boulevard. Drainage improvements will consist of upgrading existing catch basins with 4-foot deep sump hooded structures. East of the Grove Street intersection a grass lined channel will collect and direct runoff surface flow to the east and a catch basin. Narrowing the roadway will result in a reduction of total impervious area by 5,238 square feet or 0.12 acres. However, reconstruction of the bike path will add 2,072 square feet (0.048 acres) of new pavement. The net benefit of the project will reduce paved area within the project by 3,166 square feet (0.073 acres). Drainage enhancements and reducing pavement will provide improved stormwater quality and groundwater

recharge. Existing traffic signal timing modifications and improvements will be conducted along Greenough Boulevard in conjunction with roadway thinning.

A portion of the proposed work will occur within Riverfront Area and the 100-foot buffer zone. Work within Riverfront Area and the 100-foot buffer zone is described below. Provisions to prevent adverse effects on wetland resources are described in the Mitigation Measures section of this Narrative. The Project has been designed to comply with all applicable performance standards, as demonstrated in the Regulatory Compliance section.




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### Work in Regulated Wetland Resource Areas

Although several regulated wetland resource areas are near the proposed construction, there will be no alteration to Bank, BVW, LUWW or BLSF.




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### Work in Riverfront Area

Work will be conducted within the 200-foot Riverfront Area associated with the Charles River. There is approximately 350,647 square feet (8.05 acres) of Riverfront Area within the project limits in Watertown. Approximately 33,212 square feet (0.76 acres) of Riverfront Area will be altered due to the Greenway Enhancement and realignment of the bike path away from the roadway. The bike path alignment within the Riverfront Area will generally follow the existing path. Where the pavement of Greenough Boulevard is being reduced, the path will be moved further away from the river. In some areas, the bike path alignment will be adjusted to avoid removing vegetation, or to create greater separation from Greenough Boulevard and allow planting in the new intervening space. Work proposed in the Riverfront Area includes removal of existing bike path, re-grading, full depth pavement for the new bike path, grading, and loam and seeding. Work activities that will impact Riverfront Area include reconstruction and repaving of paved areas, removal of existing paving and replacing with vegetated surfaces, regrading and reseeding vegetated areas, and paving of existing vegetated areas. The following table summarizes the work activities and areas with Riverfront Area.

**Table 2 - Work in 200-foot Riverfront Area in Watertown**

Activity	Previously Degraded (Sq. Ft.)	Previously Undegraded (Sq. Ft.)	Totals (Sq. Ft.)
A - Repaving of Paved Path	10,091	-	10,91
B - Paving of Vegetated Area	-	4,326	4,326
C - Removal of Pavement and Revegetation	13,539	-	13,539
D - Regrading and Revegetation	-	5,256	5,256

Net New Pavement (B-C)			-9,213
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Source: VHB, Inc.

Repaving the existing path is considered redevelopment of degraded Riverfront Area. New paving of existing vegetated areas will affect Riverfront Area. Removal of existing pavement and revegetation is restoration of Riverfront Area and the temporary impacts of minor regrading, loaming and seeding will not be an impact. The project will result in a reduction of 9,213 square feet of pavement in the Riverfront Area. (Overall project will reduce pavement by 3,166 square feet.)




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### Work in Buffer Zone

Work is proposed in the 100-foot buffer zone established by the WPA to wetland resource areas BVW and Bank. As with Riverfront Area, work activities proposed in the WPA buffer zone includes narrowing the roadway, removal and reconstruction of the existing bike path, re-grading, and full depth pavement of new bike path. Also included is revegetation of former paved areas, planting trees, and installing stormwater management features including a vegetated swale to help convey and treat stormwater. The majority of the work will occur in previously developed areas that are either covered pavement or adjacent to Greenough Boulevard.




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### Work in Locally Regulated Buffer Zones

The project will include work within the locally regulated 50-foot No Build Zone and the 150-foot buffer zone. The following describes the proposed work in these areas.

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### Work in the 50-foot No Build Zone

The existing roadway and bike path are within the 50-foot No Build Zone (NBZ) through most of the project corridor. To achieve the project goals of narrowing the roadway, reconstructing the bike path and increasing the vegetated area, work must be conducted within the NBZ. Work will include, removing roadway pavement, reconstructing the existing bike path, installing guardrail and curbing, loaming and seeding, and planting trees to expand vegetated area, and installing erosion controls. Work cannot be avoided with the NBZ as the roadway and bike path are within 50 feet of the wetland boundaries and bank of the Charles River.

Benefits provided by the proposed work include removing existing pavement, increasing vegetated area and increasing opportunity for infiltration. Vegetated buffers for the adjacent wetland resource areas will be increased and the edge of the roadway will be moved further from the wetland areas along the eastern side of the roadway.

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## Work in the 150-foot Buffer Zone

Work in the 150-foot buffer zone is similar as described above for the NBZ. Work will include removing roadway pavement, reconstructing the bike path, installing guard rail and curbing, placing loam and seeding and installing erosion controls. In addition, on the northwest side of the roadway near the Cambridge City line, a grass lined channel will be constructed for stormwater management. Work in the 150-foot buffer zone cannot be avoided as the project work area is within 150 feet of wetland resource boundaries.

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## Mitigation Measures

A suite of mitigation measures is proposed to prevent short- and long-term impacts to wetland resource areas. Mitigation measures proposed for this project are described below.

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## Erosion and Sedimentation Controls

An erosion and sedimentation control program will be implemented to minimize temporary impacts to wetland resource areas during the construction phase of the project. The program incorporates Best Management Practices (BMPs) specified in guidelines developed by the DEP<sup>8</sup> and the U.S. Environmental Protection Agency (EPA).<sup>9</sup>

Proper implementation of the erosion and sedimentation control program will:

- minimize exposed soil areas through sequencing and permanent stabilization;
- place structures to manage stormwater runoff and erosion; and
- establish a permanent vegetative cover or other forms of stabilization as soon as practicable.

The following sections describe the controls that will be used and practices that will be followed during construction. These practices comply with criteria contained in the NPDES General Permit for Discharges from Large and Small Construction Activities issued by the EPA. The project will alter greater than one acre and will require an NPDES Construction General Permit.

<sup>8</sup> DEP, 1997. *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials.*

<sup>9</sup> EPA, 2007. *Interim Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites.* Office of Water Report EPA 833-R-060-04.

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## Non-Structural Practices

Non-structural practices to be used during construction may include temporary seeding and permanent seeding. These practices will be initiated as soon as practicable in appropriate areas at the site.

Upon completion of final grading, all restored areas will be seeded with the seed mixes called for in the site plans or, for any areas not specified in the site plans, a natural grass seed mix appropriate to the region. The mix will be applied at a rate as specified by the manufacturer and will be covered with mulch or bonded fiber matrix as needed.

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## Structural Practices

Structural erosion and sedimentation controls that may be used on the site include erosion control barriers and catch basin inlet protection.

### Erosion Control Barriers

Prior to any ground disturbance, a barrier of compost filter tubes will be installed at the downgradient limit of work. The barriers will be staked in to hold the tubes down and in place and to prevent underflow.

If sediment has accumulated to a depth that impairs proper functioning of the barrier, it will be removed by hand or by machinery operating upslope of the barriers. This material will be either reused at the site or disposed of at a suitable offsite location. Any damaged sections of the erosion control barrier will be repaired or replaced immediately upon discovery.

### Catch Basin Inlet Protection

The inlets of existing catch basins in the vicinity of the work will be protected from sediment inflow during the work period by surrounding them with catch basin inlet filters. If sediment that has collected in the inlet filter to a point where it impairs proper functioning, it will be removed and will be either reused onsite or disposed of at a suitable offsite location.

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## Stormwater Management

Runoff generated from impervious surfaces will be collected and managed in accordance with the DEP Standards. The Greenway Boulevard project will result in net increase in pervious area by 3,166 square feet (0.073 acres) overall. There will be a net decrease of stormwater runoff rates in comparison to pre-construction conditions. Stormwater from the roadway will be infiltrated and treated from vegetated swales



and grass channels to provide improved treatment of the stormwater runoff. The new stormwater collection system will improve stormwater runoff quality by increasing total suspended solids removal, providing increased groundwater recharge, and flow attenuation.

Full details and compliance with the 10 stormwater management standards cited in Section 310 CMR 10.05(6)(k) of the WPA Regulations is evaluated in the accompanying Stormwater Management Memorandum (Attachment C)

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## Regulatory Compliance

Proposed construction activities will occur within Riverfront Area and buffer zone Bank and BVW in several locations. The project qualifies as a limited project under WPA regulations at 310 CMR 10.53(6) for the work associated with the bike path and 310 CMR 10.53(3)(f) for the roadway improvements. The project also qualifies as a limited project for work in buffer zone pursuant to the Watertown Wetlands Ordinance.

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## Limited Project Status

The work associated with the project is subject to a limited project allowing footpaths and bike paths in Riverfront Area (310 CMR 10.53(6))...*"Notwithstanding the provisions of 310 CMR 10.58, the issuing authority may issue an Order of Conditions for the construction, rehabilitation, and maintenance of footpaths, bikepaths, and other pedestrian or nonmotorized vehicle access to or along riverfront areas but outside other resource areas, provided that adverse impacts from the work are minimized and that the design specifications are commensurate with the projected use and are compatible with the character of the riverfront area. Generally, the width of the access shall not exceed ten feet of pavement..."*

The proposed construction activities include the construction of a bike path and will be outside of any other resource area and therefore meets the requirements for a Limited Project. Due to the nature of the project, work in the Riverfront Area is unavoidable. In addition to avoiding impacts to resource areas to the extent practicable, erosion and sedimentation controls are proposed to further reduce the risk of adverse impacts to adjacent resource areas. The bike path will be 10 feet wide and will be consistent with the park setting and character of the existing DCR Greenough Boulevard Greenway.

In addition, the improvements for the Greenough Boulevard comply with the provisions of the public roadways improvement limited project (310 CMR 10.53(3)(f))... *"Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems."*

The proposed improvements to Greenough Boulevard will not include any roadway widening, will not add travel lanes, will add shoulders and will improve the drainage system. There will also be a net reduction of degraded area within Riverfront Area by 9,213 square feet.

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### Watertown Wetland Ordinance

The project qualifies as a limited project in buffer zone (Section IV.H.(4)(j)) as it consists of reconstructing a bike path for pedestrians and non-motorized vehicles, and will also include removing roadway pavement and increasing vegetated area.



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### Work in Riverfront Area

Work will be conducted within Riverfront Area associated with the Charles River. Work within the Riverfront Area includes narrowing Greenough Boulevard and reconstructing and improving the bike path along Greenough Boulevard. The Greenough Boulevard was in existence before August 7, 1996 and portions of the Riverfront Area within the project limits meet the definition of being previously developed and degraded, being covered by impervious surfaces. The location of the bike path is between Greenough Boulevard and the Charles River and will generally follow the existing bike path alignment. Minor adjustments to the alignment will be included to avoid trees, increase separation from Greenough Boulevard, or move the path away from the edge of the River where Greenough Boulevard has been narrowed. The width of the proposed bike path will not exceed 10 feet and is not located within a vernal pool or other resource areas. Therefore, the work associated with the bike path qualifies as a limited project under WPA regulations at 310 CMR 10.53(6), *"The construction, rehabilitation, and maintenance of footpaths, bikepaths, and other pedestrian or non-motorized vehicle access to or along riverfront areas but outside other resource areas..."*, while the roadway improvements qualify for a different limited project (310 CMR 10.53(3)(f)), *"Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems."*

Overall there is 350,647 square feet of Riverfront Area within the project limits. Work is proposed within 33,212 square feet of the Riverfront Area, however, 10,091 square feet is degraded by the existing bike path and will be redeveloped and repaved for the reconstructed path. Approximately 4,326 square feet of undegraded Riverfront will be impacted by new paving for the bike path. As mitigation, 13,539 square feet of existing pavement within Riverfront Area will be removed and restored with vegetation. This will leave a net of 9,213 square feet of existing pavement removed from the Riverfront Area by the project. An additional 5,256 square feet of vegetated area will be temporarily altered and will be restored.

The project is considered redevelopment of Riverfront Area and complies with the provisions of a limited project. The following are the standards associated with a redevelopment project (310 CMR 10.58(5)) in Riverfront Area and documentation for compliance.

- (a) *At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.*

The interests of the Act will be protected by removing of pavement in close proximity to the Bank and eliminating the existing gravel portion of the bike path near Arsenal Street with a stabilized surface. This will help prevent runoff of sediment to the adjacent river.

- (b) *Stormwater management is provided according to standards established by the Department.*

Stormwater for the project overall will be greatly improved by elimination of impervious area and increase of vegetated surfaces. New catch basins will be installed and surface collection of stormwater will use grassed swales to help filter and treat runoff and prevent erosion. The bike path to be constructed in the Riverfront Area will be designed as a "country drainage" system, allowing runoff to sheet flow onto adjacent vegetated surfaces. No collection system will be included for the bike path and no new outfalls to the river will be constructed.

- (c) *Within 200 foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25 foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).*

Generally the bike path will be relocated further from the Bank of the River. In a few locations, the path will be slightly closer to the Bank to allow an increased vegetated buffer from the narrowed roadway. The bike path improvements comply with the requirements of the limited project.

- (d) *Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).*

Much of the work associated with the Greenough Boulevard Greenway Enhancement Project is within the Riverfront Area. Work is generally within degraded Riverfront Area associated with the narrowing of Greenough Boulevard, and reconstruction of the bike path. Work associated with the bike path is in Riverfront Area complies with the requirements of a limited project (310 CMR 10.53(6)) and the roadway work qualifies as a limited project for the maintenance and improvement of public roadways (310 CMR 10.53(3)(f)).

- (e) *The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).*

As previously discussed, 350,647 square feet of Riverfront Area is within the project limits. Of that area, 33,212 square feet will be altered by various activities including, paving, removal of pavement, and grading and reseeding. Of the work in area that is not already degraded, 4,326 square feet of vegetated area will become paved. This represents approximately 1.23 percent of the Riverfront Area. However, pavement within 13,539 square feet of Riverfront Area will be removed, with a net decrease of pavement within Riverfront Area of 9,213 square feet or 2.62 percent of the available Riverfront Area.

- (f) *When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:*

- 1. removal of all debris, but retaining any trees or other mature vegetation;*
- 2. grading to a topography which reduces runoff and increases infiltration;*
- 3. coverage by topsoil at a depth consistent with natural conditions at the site; and*
- 4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;*

As noted above, approximately 13,539 square feet of paved Riverfront Area will be revegetated and will serve as restoration of on-site degraded Riverfront Area. The area of restoration is over three times the area of alteration, and the project complies with the limited project and may be allowed notwithstanding these regulations.

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## Watertown Wetland Ordinance

### *Section IV.G.(4) General Performance Standards for Riverfront Area*

- (a) *No Permit issued hereunder shall approve any activities unless the Applicant, in addition to meeting the otherwise applicable requirements of this Ordinance, has proved by a preponderance of the evidence that:*

- There is no practicable alternative to the proposed project with less adverse effect, and*
- Such activities, including proposed mitigation measures, will have no significant adverse impact on the areas or interests protected by this Ordinance.*

There is no practicable alternative to the proposed project with less adverse impact. The proposed project reduces development in close proximity to wetland resources and restores vegetated buffers. The project is "self mitigating" by improving the project area. Even the "no build" alternative would not improve the project area by leaving the roadway intact and would not increase green

space, and opportunity for infiltration or improve stormwater management. The project as proposed will provide additional protection of the adjacent wetland resources by increasing the vegetated buffer of the roadway and improve stormwater management and increase infiltration to groundwater.

*(b) The Commission shall regard as practicable an alternative which is reasonably available and capable of being done after taking into consideration the proposed property use, overall project purpose (e.g., residential, institutional, commercial, or industrial), logistics, existing technology, costs of the alternatives, and overall project costs.*

There are no other alternatives to the proposed project. The project is proposed to improve the Greenough Boulevard Greenway as a parkland by increasing green space and the bike path along the Boulevard and the Charles River. The proposed project achieves this purpose while at the same time reducing development in close proximity to regulated resource areas.

*(c) The Commission will apply the methods and criteria for alternatives analyses specified in the Massachusetts Wetlands Protection Act regulations at 310 CMR 10.58 (4) (c).*

The project by design improves the Riverfront Area by reducing impervious area, increasing green space, and reconstructing a bike path.

*(d) The work must have no significant adverse impact on the capacity of the Riverfront Area to protect the interests protected by the Ordinance.*

The proposed project will not have an adverse impact on the capacity of the Riverfront Area to protect the interests of the Ordinance. Within the Riverfront Area, pervious vegetated area will be increased. A portion of the paved roadway will be removed, moving the edge of pavement away from the bank of the Charles River. The increased width of vegetated area adjacent to the Charles River will provide opportunity for increased infiltration, increased filtering of runoff and increased wildlife habitat. This will increase protection of water quality, control of pollution, protection of groundwater supply and control of erosion and sedimentation. Creating a vegetated buffer between the bike path and the roadway will also provide a more pleasant experience for those using the path facility, protecting recreational and aesthetic values.

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## Work in Buffer Zone

As identified in 310 CMR 10.53(1) of the WPA regulations, *"the issuing authority should consider the characteristics of the buffer zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on resource areas. Conditions may include imitations on the scope and location of work in the buffer zone as necessary to avoid alteration of resource areas. The issuing authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the resource area and/or other measures commensurate with the scope and location of the work within the buffer zone to protect the interests of the Act."*

The proposed project has been designed to address these requirements. As identified in the Mitigation Measures section of this attachment, an erosion and sedimentation control program will be implemented to prevent adverse impacts during construction. The buffer zone throughout the majority of the project area is previously disturbed and is largely developed with roadway and/or, bike path. Mature vegetation along the Charles River corridor will be protected from damage during the construction activities, by installing an erosion control barrier between the work area and the Bank or BVW. At the end of construction, all disturbed areas not stabilized by other means (such as pavement) will be loamed and seeded.

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## Watertown Wetland Ordinance

### *(4) General Performance Standards*

*(a) No work in a Buffer Zone should alter an adjacent Resource Area (including Intermittent Streams or Springs), or if an adjacent Resource Area is altered by work in the Buffer Zone, the alteration must comply with the applicable performance standards for the altered Resource Area and any other conditions the Commission may require to enforce those performance requirements.*

Wetland resource areas adjacent to the project area will not be altered.

*(b) The Commission may consider the extent of work, the proximity of the work to the Resource Area, the presence of steep slopes, the extent to which the Buffer Zone has already been developed, the extent of natural vegetation, and other factors that affect the potential impact of work in the Buffer Zone on Resource Areas. Where prior development of the Buffer Zone is extensive, the Commission may require measures such as the restoration of natural vegetation adjacent to the Resource Area to protect the interests of the Ordinance.*

The project will include the revegetation of developed areas in the buffer zone including planting trees.

*(c) No above ground or underground storage tanks containing hazardous materials or gasoline, oil or other fuels may be placed within 100 feet of an adjacent protected Resource Area (including Intermittent Streams and Springs.)*

No underground or above ground storage tanks will be built by this project.

*(d) The following activities will be prohibited within 25 feet of an adjacent Resource Area (including Intermittent Streams and Springs):*

- *Removal of trees or surface vegetation, except for selective pruning or thinning, removal of hazardous trees, replacement of non-native or invasive species with native plantings, or replacement of lawn or other significantly artificial landscape with indigenous groundcover, trees and/or shrubs.*
- *Use of fertilizers or pesticides.*
- *Dumping of grass clippings, brush, leaves, or other debris or trash.*

- *Storage of scrap metal, construction materials or equipment, or other materials.*
- *Piling of road salt, sand or snow.*
- *Vehicle parking.*

The above listed activities will not take place within 25 feet of an adjacent resource area.

*(e) The Commission will not approve any alteration within 50 feet of a vernal pool, except under the provisions of Section I.D(2) or Section IV.A(9) of these Regulations. Such a waiver will at a minimum impose the same conditions and performance standards identified above for areas within 25 feet of protected Resource Areas.*

No vernal pools are within 50 feet of the project area.

*(f) Properties not currently in compliance with the performance standards for Buffer Zones will not be permitted to increase their degree of non-conformance.*

The project will not increase non-compliance with the standards for buffer zones.

*(g) The Commission may, at its sole discretion, require greater than the minimum setback distances specified above.*

Understood.

*(h) Erosion and sedimentation controls must be utilized for any construction within the Buffer Zone that will result in exposed soils. No silt or sediment may be allowed to enter a Resource Area during or subsequent to construction.*

An erosion control barrier will be established at the limit of work and will be maintained throughout construction.

*(i) Limited projects in the Buffer Zone: The Commission may, at its sole discretion, waive specific requirements in this section for execution in the Buffer Zone of the following types of projects, where there are no reasonable alternatives with fewer adverse effects:*

- *Construction, reconstruction, operation and maintenance of underground and overhead public utilities, such as electrical distribution or transmission lines, communication, sewer, water or natural gas lines, and stormwater management structures.*
- *Construction, rehabilitation and maintenance of footpaths, bikepaths and other pedestrian or nonmotorized vehicle access to or along waterways or water bodies.*
- *Operation and routine maintenance, but not enlargement, of water dependent structures, including boat launching ramps and docks.*
- *Routine maintenance and repair of existing public roadways, but not including widening a roadway.*

This project includes the construction and rehabilitation of a bike path along a waterway. The project also includes the narrowing of a public roadway (not widening). The project appears to qualify as a limited project and will increase protection of the adjacent wetland resource areas and the interests of the Ordinance.

*Best available measures shall be used to minimize adverse effects of such limited projects during construction, and surface vegetation and contours of the affected area shall be substantially restored. The Commission has the discretion to permit with conditions or deny such activities to ensure that the interests of the Ordinance are protected.*

Existing vegetation will be maintained and contours will be substantially restored as part of this project.

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## Summary

The Applicant, Lawrence and Lillian Solomon Foundation, proposes to enhance the Greenough Boulevard Greenway in the Town of Watertown, Massachusetts. The purpose of the project is to improve the safety of the Greenough Boulevard corridor, provide a fully accessible multi-use path along the river. The project will be constructed by the Lawrence and Lillian Solomon Foundation with construction oversight by the DCR.

The roadway will be narrowed to accommodate a widened, enhanced bike path. Full depth pavement will be performed along the length of the project for the bike path. The majority of the proposed project area is previously developed by a roadway and bikeway. Measures to protect these resources will be deployed during the construction period. Post-construction stormwater management represents an improvement over the existing conditions by the addition and upgrades of deep sump hooded catch basins, vegetated swales, and grass channels within the project area. As a limited project, the project complies the maximum extent practicable with the applicable performance standards for work within jurisdictional areas.

The project area is limited to existing developed areas of the public roadway and bike way owned by the DCR (Charles River Reservation). Most of the work will be conducted on the south or east side of Greenough Boulevard. Some drainage work will be conducted on the north side of the Boulevard. The bike path runs the length of Greenough Boulevard east of Arsenal Street and is between the road and the Charles River and is adjacent to five wetland resource areas, including the Charles River and Sawins Pond Brook. Work will be conducted within the Riverfront Area, but there will be a net reduction of degraded area by the project.

The Applicant respectfully requests that the Watertown Conservation Commission find these measures adequately protective of the interests identified in the WPA and the Wetlands Ordinance, and issue an Order of Conditions approving the work described in this NOI and shown on the accompanying plans.



# Attachment B

## Abutter Information

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- Notice to Abutters
  - List of Abutters



## NOTIFICATION TO ABUTTERS

### WATERTOWN WETLANDS ORDINANCE MASSACHUSETTS WETLANDS PROTECTION ACT M.G.L. C. 131.§40

An Application for Permit and a Notice of Intent has been filed with the Watertown Conservation Commission seeking permission to remove, fill, dredge or alter an area subject to protection under G.L. Ch. 131.§40 and/or the Watertown Wetlands Ordinance.

The name of the Applicant is the Lawrence and Lillian Solomon Foundation.

The address of the land where the activity is proposed is Greenough Boulevard between Arsenal Street and the Watertown/Cambridge Town line. The proposed project is to expand the Greenough Boulevard Greenway along the Charles River. A portion of the Greenough Boulevard will be narrowed and the green space adjacent to the roadway will be expanded with reconstruction of the existing bike path along the Charles River. In addition, management and treatment of stormwater runoff will be improved. Overall there will be a reduction of pavement and an increase in opportunity for infiltration of stormwater.

Copies of the Application for Permit and Notice of Intent and accompanying plans may be examined at the office of the Watertown Conservation Commission, Town Hall (3<sup>rd</sup> floor), 149 Main Street, Watertown MA during regular business hours.

For more information, call Gene Crouch at 617-924-1770, or email [gcrouch@vhb.com](mailto:gcrouch@vhb.com)

Check one: This is the Applicant [  ], Applicant's representative [X], or other [specify].

Copies of the Application for Permit and Notice of Intent may be obtained from either (check one) the Applicant [  ] or the Applicant's representative [X], by calling 617-924-1770 from 8 AM to 5 PM Monday through Friday or contact the applicant's representative listed above.

Notice of the public hearing to be held October 1, 2014 at 7:30 PM in the lower hearing room in the Watertown Town Hall, will be published in the *Watertown Tab* and will be posted outside the Town Clerk's office on the first floor of the Watertown Town Hall, at least five business days in advance of the hearing.

Contact the Watertown Conservation Commission of the MA Department of Environmental Protection (DEP) Northeast Region Office for information about this Application or the Wetlands Protection Act, and the Commission regarding the Watertown Wetlands Ordinance.

Watertown Conservation Commission  
(617) 972-6426  
<http://www.watertown-ma.gov/index.aspx?nid=103>

MassDEP Northeast Region Office  
(978) 694-3200  
<http://www.mass.gov/dep/>

## Abutters to Greenough Boulevard Greenway Expansion Project

### Town of Watertown

Parcel ID	Property Address	Owners Name	Mailing Address
1401-29C-0	225-231 Coolidge Avenue	Wateridge Condominium Association	225-231 Coolidge Ave. Watertown, MA 02472
1401-13-0	Arsenal St.	United States of America U.S. General Services Admin	10 Causeway St. Boston, MA 02222
1401-10-0	Arsenal St.	Commonwealth of Massachusetts Dept. of Conservation and Recreation	251 Causeway St. Ste. 600 Boston, MA 02114
1401-28-1064	199 Coolidge Ave.	Crossroads on Charles	199 Coolidge Ave. Watertown, MA 02472

**Attachment C**  
**Stormwater Management Memorandum**



# Attachment B

## Stormwater Management Report

The proposed project consists of proposed roadway improvements along 1.1 miles of Greenough Boulevard in Cambridge and Watertown, Massachusetts. Roadway improvements are proposed between the Arsenal Street intersection in Watertown and the Elliot Bridge in Cambridge. The project area consists of the narrowing of the Greenough Boulevard and the reconstruction of the Paul Dudley White Bike path along the east side of the Boulevard.

The roadway corridor is a greenway with parkland along the east side adjacent to the Charles River. The park land consists of mowed grasses and unmanaged wooded areas on the Banks of the Charles. Along the west side of the project is the Cambridge Cemetery, elevated slightly above the roadway.

Greenough Boulevard is a four lane roadway with dedicated turning lanes at the intersections. The project consists of narrowing portions of the Boulevard from four lanes to two lanes and realigning and widening the adjacent bike path to 10 feet. Overall, approximately 39,992 square feet (0.92 acres) of pavement (roadway) will be eliminated (36,826 square feet in Cambridge and 3,166 square feet in Watertown) and replaced by landscaping. Turning lanes will be maintained at the intersections. The roadway improvements will include the installation of a new stormwater collection and management system within the limits of the roadway. New hooded deep sump catch basins will be installed in the project area, where the roadway is being modified. The new catch basins will improve the TSS removal rates over the existing stormwater collection system so there will be improvement to stormwater quality over existing conditions. Within the expanded landscaping, grassed swales will be created to help manage and treat surface runoff. On the west side of the roadway, a number of grass-line channels will be created to convey flow to catch basins and address issues of existing ponding in the roadway. Stormwater will be conveyed to the Charles River via existing cross culverts and outlet pipes that will be cleaned and maintained. No new outfalls will be installed.

This project qualifies as a stormwater redevelopment project and the following lists the Stormwater Management Standards, and how the project complies with the maximum extent possible.

**Standard 1: (Untreated discharges)**

*No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth. Same rule applies for new developments and redevelopments.*

No new outfalls will be created by this project. All stormwater will be collected and treated by routing through hooded and deep sump catch basins and grass lined channels. No untreated stormwater runoff will be discharged by the project.

**Standard 2: (Peak rate control and flood prevention)**

*Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for land subject to coastal storm flowage. Full compliance for any component that is not a redevelopment.*

The project will remove 0.92 acres of existing roadway pavement (0.85 acres in Cambridge and 0.07 acres in Watertown). There will be a corresponding increase in pervious area allowing infiltration and a reduction in the runoff generated by the project site. Post-development peak discharge rates will be reduced.

**Standard 3: (Recharge to Ground water)**

*Loss of annual recharge to ground water shall be eliminated or minimized through the use of infiltration measures, including environmentally sensitive site design, low impact development techniques, best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from the pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook. Full compliance for any component that is not a redevelopment.*

Approximately 0.92 acres (0.85 acres in Cambridge and 0.07 acres in Watertown) of new pervious area will be created. The volume of recharge to groundwater will be significantly increased within the project site.

**Standard 4: (80% TSS Removal)**

*Stormwater management systems must be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:*

- a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan and thereafter are implemented and maintained;*
- b. Stormwater BMPs are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*

*c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.*

Full compliance for any component that is not a redevelopment.

Full compliance with the long-term pollution plan requirement for new developments and redevelopments.

The project will replace the existing catch basins with deep sump and hooded basins to provide improved TSS removal. In addition, new grassed swales will be installed on both sides of the roadway to collect and filter stormwater runoff before entering the catch basins. Although the proposed stormwater system will not provide 80 percent TSS removal, it will be increased over existing conditions.

**Standard 5 (Higher Potential Pollutant Loads (HPPL))**

*For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific stormwater BMPs determined by the Department to be suitable for such use as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.*

Full compliance for any component that is not a redevelopment.

Full compliance with pollution prevention requirements for new developments and redevelopments.

The project area is not identified as a land use of higher potential pollutant load.

**Standard 6 (Critical Areas)**

*Stormwater discharges to a Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or any other critical area require the use of the specific source control and pollution prevention measures and the specific stormwater best management practices determined by the Department to be suitable for managing discharges to such area, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters or Special Resource Waters shall be set back from the receiving water and receive the highest and best practical method of treatment. A "stormwater discharge," as defined in 314 CMR 3.04(2)(a)1. or (b), to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of the public water supply.*

Full compliance for component of project that is not a redevelopment.



Full compliance with pollution prevention requirements for new developments and redevelopments.

The Charles River is not a Critical Area.

**Standard 7:** *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

Redevelopment is defined to include maintenance and improvement of existing roadways, including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving;

This project consists of improving an existing roadway (by reducing the pavement width) and improving the existing drainage system. This project qualifies as a redevelopment project and complies with Standards 1, 2 and 3, and addresses the remaining Standards to the extent possible.

**Standard 8: (Erosion, Sediment Control)**

*A plan to control construction-related impacts, including erosion sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan), must be developed and implemented.*

All redevelopment projects shall fully comply with Standard 8.

An erosion and sediment control plan has been prepared, with the proposed erosion controls illustrated on the project plans. In addition, an NPDES Stormwater Pollution Prevention Plan will be required prior to the start of construction.

**Standard 9: (Operation and Maintenance)**

*A long-term operation and maintenance plan must be developed and implemented to ensure that stormwater management systems function as designed.*

All redevelopment projects shall fully comply with Standard 9.

The DCR has developed a long-term operations and maintenance plan for the roadway facilities it owns and operates. A copy of the operation and maintenance of schedule is attached.

**Standard 10 (Illicit Discharges)**

*All illicit discharges to the stormwater management system are prohibited.*

All redevelopment projects shall fully comply with Standard 10.

The new stormwater management conveyance system will largely consist of existing piping system. The project contractor will be required to investigate the existing system of piping and verified that there are no illicit connections.

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## Summary

The proposed Greenough Boulevard Greenway Expansion in Cambridge and Watertown consists of the narrowing and of the roadway, a new bike path, and installation of a new stormwater management system. A significant amount of new pervious area will be created by removal of pavement so runoff rates are anticipated to be reduced and infiltration rates increased. The new stormwater collection system will improve stormwater runoff quality by increasing TSS removal and provide better spill containment. Within the project site, grassed swales will also be installed to help collect and treat stormwater and convey to catch basins. The project is classified as a redevelopment project and complies with Standards 1, 2 and 3 and addresses the remainder of the Massachusetts Stormwater Management Standards to the maximum extent possible.





# Checklist for Stormwater Report

## A. Introduction

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.<sup>1</sup> This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8<sup>2</sup>
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

<sup>1</sup> The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

<sup>2</sup> For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



# Checklist for Stormwater Report

## B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

### Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

\_\_\_\_\_  
Signature and Date

## Checklist

**Project Type:** Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



# Checklist for Stormwater Report

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## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
  - Credit 1
  - Credit 2
  - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): \_\_\_\_\_

### Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
  - Static
  - Simple Dynamic
  - Dynamic Field<sup>1</sup>
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
  - Site is comprised solely of C and D soils and/or bedrock at the land surface
  - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
  - Solid Waste Landfill pursuant to 310 CMR 19.000
  - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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<sup>1</sup> 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



# Checklist for Stormwater Report

## Checklist (continued)

### Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

### Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
  - Provisions for storing materials and waste products inside or under cover;
  - Vehicle washing controls;
  - Requirements for routine inspections and maintenance of stormwater BMPs;
  - Spill prevention and response plans;
  - Provisions for maintenance of lawns, gardens, and other landscaped areas;
  - Requirements for storage and use of fertilizers, herbicides, and pesticides;
  - Pet waste management provisions;
  - Provisions for operation and management of septic systems;
  - Provisions for solid waste management;
  - Snow disposal and plowing plans relative to Wetland Resource Areas;
  - Winter Road Salt and/or Sand Use and Storage restrictions;
  - Street sweeping schedules;
  - Provisions for prevention of illicit discharges to the stormwater management system;
  - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
  - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
  - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
  - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
    - is within the Zone II or Interim Wellhead Protection Area
    - is near or to other critical areas
    - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
    - involves runoff from land uses with higher potential pollutant loads.
  - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
  - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
  - The ½" or 1" Water Quality Volume or
  - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the proprietary BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

### Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted *prior* to the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does *not* cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has *not* been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

### Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



# Checklist for Stormwater Report

## Checklist (continued)

### Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
- Limited Project
  - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
  - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
  - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
  - Bike Path and/or Foot Path
  - Redevelopment Project
  - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
  - Construction Period Operation and Maintenance Plan;
  - Names of Persons or Entity Responsible for Plan Compliance;
  - Construction Period Pollution Prevention Measures;
  - Erosion and Sedimentation Control Plan Drawings;
  - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
  - Vegetation Planning;
  - Site Development Plan;
  - Construction Sequencing Plan;
  - Sequencing of Erosion and Sedimentation Controls;
  - Operation and Maintenance of Erosion and Sedimentation Controls;
  - Inspection Schedule;
  - Maintenance Schedule;
  - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



# Checklist for Stormwater Report

## Checklist (continued)

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has *not* been included in the Stormwater Report but will be submitted *before* land disturbance begins.
- The project is *not* covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

### Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
  - Name of the stormwater management system owners;
  - Party responsible for operation and maintenance;
  - Schedule for implementation of routine and non-routine maintenance tasks;
  - Plan showing the location of all stormwater BMPs maintenance access areas;
  - Description and delineation of public safety features;
  - Estimated operation and maintenance budget; and
  - Operation and Maintenance Log Form.
- The responsible party is *not* the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
  - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
  - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

### Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted *prior to* the discharge of any stormwater to post-construction BMPs.