Notice of Intent Application and Wetland Resource Area Analysis

April 27, 2017

Proposed Project
Cashman Park Improvements
Hilldale Avenue
Haverhill, Massachusetts

Applicant and Owner
City of Haverhill
10 Welcome Street
Haverhill, MA 01830

LEC Environmental Consultants, Inc.
100 Grove Street
Suite 302
Worcester, MA 01605
508-753-3077
508-753-3177 fax
www.lecenvironmental.com
April 27, 2017

Hand Delivery

Haverhill Conservation Commission
City Hall
4 Summer Street, Room 300
Haverhill, MA 01830

Re: Notice of Intent Application
Cashman Park Improvements
Hilldale Avenue
Haverhill, Massachusetts

Dear Members of the Conservation Commission:

On behalf of the Applicant, the City of Haverhill, LEC Environmental Consultants, Inc., (LEC) is filing the enclosed Notice of Intent (NOI) Application and Wetland Resource Area Analysis with the Haverhill Conservation Commission for a public benefit project to improve Cashman Park located on Hilldale Avenue in Haverhill, Massachusetts. This filing is submitted pursuant to the Massachusetts Wetlands Protection Act (M.G.L. c. 131 § 40, the Act) and its implementing Regulations (310 CMR 10.00, the Act Regulations) and the City of Haverhill Wetlands Ordinance (Chapter 253, the Ordinance). The Haverhill Conservation Commission does not administer Rules and Regulation for the Ordinance. The proposed activities are located, in part, within the 200-foot Riverfront Area associated with the Little River and/or the 100-foot Buffer Zone to Bank or Bordering Vegetated Wetlands (BVW). The Applicant proposes to implement erosion controls to minimize the potential for impacts to resource areas. The proposed project is depicted on the attached site plans, entitled Landscape Plan, Cashman Park, Haverhill, MA prepared by Brown, Richardson + Rowe, 2 sheets, dated April 24, 2017.

In accordance with 310 CMR 10.03(7)(f), and since the City of Haverhill is the Applicant, no filing or legal notice fees are assessed for this project. It is our understanding that the Conservation Commission will legally post the Legal Advertisement for the NOI Application in time for the Conservation Commission’s May 11, 2017 Public Hearing.
We trust that the information included herein is sufficient to facilitate your review. Should you have any questions regarding this NOI or require additional information, please contact me in our Worcester office at 508-753-3077 or at akendall@lecenvironmental.com. We look forward to meeting with the Commission on May 11, 2017.

Sincerely,

LEC Environmental Consultants, Inc.

[Signature]

Andrea Kendall
Senior Environmental Scientist

cc: DEP, Northeast Region
    Vinny Ouellette, Director of Human Services Department, City of Haverhill
    James Pfeiffer, Brown, Richardson + Rowe
### Notice of Intent Application

- i. WPA Form 3 – Notice of Intent
- ii. Haverhill Conservation Commission Local Application Form 3-Notice of Intent
- iii. Affidavit of Service
- iv. Abutter Letter
- v. Abutter Notification
- vi. List of Abutters

### Wetland Resource Area Analysis and Notice of Intent Report

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     - 3.1.2 Measurement of Relative Abundance
     - 3.1.3 Measurement of Vegetative Distribution and Density
   - 3.2 Evaluation of Edaphic Characteristics
     - 3.2.1 General Soil Analysis
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     - 3.2.4 Soil Color
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Site Photographs

Appendix C

Landscape Plan, Cashman Park, Haverhill, MA, 2 sheets, dated April 24, 2017,
prepared by Brown, Richardson + Rowe
### A. General Information

1. **Project Location** *(Note: electronic filers will click on button to locate project site):*

   - **Hilldale Avenue**
     - a. Street Address
     - b. City/Town: Haverhill
     - c. Zip Code: 01830
   - Latitude and Longitude:
     - d. Latitude: 42.783590 N
     - e. Longitude: -71.091891 W
     - f. Assessors Map/Plat Number: 523
     - g. Parcel /Lot Number: 326-1

2. **Applicant:**

   - Vinny Ouellette
     - a. First Name
     - b. Last Name
     - Director of Human Services Department, City of Haverhill
     - c. Organization
     - d. Street Address: 10 Welcome Street
     - e. City/Town: Haverhill
     - f. State: MA
     - g. Zip Code: 01830
     - h. Phone Number: 978-347-2388 ext 28
     - i. Fax Number: n/a
     - j. Email Address: vouellette@cityofhaverhill.com

3. **Property owner (required if different from applicant):**

   - a. First Name
   - b. Last Name
   - City of Haverhill
   - c. Organization
   - d. Street Address: 4 Summer Street
   - e. City/Town: Haverhill
   - f. State: MA
   - g. Zip Code: 01830
   - h. Phone Number
   - i. Fax Number
   - j. Email address

4. **Representative (if any):**

   - Andrea Kendall
     - a. First Name
     - b. Last Name
     - LEC Environmental Consultants, Inc.
     - c. Company
     - d. Street Address: 100 Grove Street, Suite 302
     - e. City/Town: Worcester
     - f. State: MA
     - g. Zip Code: 01605
     - h. Phone Number
     - i. Fax Number
     - j. Email address: akendall@lecevironmental.com

5. **Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):**

   - Fee Exempt
     - a. Total Fee Paid
     - b. State Fee Paid
     - c. City/Town Fee Paid
A. General Information (continued)

6. General Project Description:

The Applicant proposes to improve and add amenities to the 4.8± acre Cashman Park located on Hilldale Avenue in Haverhill, Massachusetts. The proposed activities are located, in part, within the 100-foot Buffer Zone to Bank or Bordering Vegetated Wetlands (BVW), and/or the 200-foot Riverfront Area associated with the Little River. The Applicant proposes to implement erosion controls to minimize the potential for impacts to resource areas.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. □ Single Family Home
2. □ Residential Subdivision
3. □ Commercial/Industrial
4. □ Dock/Pier
5. □ Utilities
6. □ Coastal engineering Structure
7. □ Agriculture (e.g., cranberries, forestry)
8. □ Transportation
9. □ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration 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. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

South Essex

a. County
b. Certificate # (if registered land)
Not Applicable
Not Applicable
c. Book
d. Page Number

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

1. □ Buffer Zone Only – 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).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.
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  
City of Haverhill Wetlands Ordinance (Chapter 253)

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

<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Size of Proposed Alteration</th>
<th>Proposed Replacement (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ☐ Bank</td>
<td>1. linear feet</td>
<td>2. linear feet</td>
</tr>
<tr>
<td>b. ☐ Bordering Vegetated Wetland</td>
<td>1. square feet</td>
<td>2. square feet</td>
</tr>
<tr>
<td>c. ☐ Land Under Waterbodies and Waterways</td>
<td>1. square feet</td>
<td>2. square feet</td>
</tr>
<tr>
<td></td>
<td>3. cubic yards dredged</td>
<td></td>
</tr>
<tr>
<td>Resource Area</td>
<td>Size of Proposed Alteration</td>
<td>Proposed Replacement (if any)</td>
</tr>
<tr>
<td>d. ☐ Bordering Land Subject to Flooding</td>
<td>1. square feet</td>
<td>2. square feet</td>
</tr>
<tr>
<td></td>
<td>3. cubic feet of flood storage lost</td>
<td>4. cubic feet replaced</td>
</tr>
<tr>
<td>e. ☐ Isolated Land Subject to Flooding</td>
<td>1. square feet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. cubic feet of flood storage lost</td>
<td>3. cubic feet replaced</td>
</tr>
<tr>
<td>f. ☒ Riverfront Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Width of Riverfront Area (check one):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ 25 ft. - Designated Densely Developed Areas only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ 100 ft. - New agricultural projects only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☒ 200 ft. - All other projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Total area of Riverfront Area on the site of the proposed project:</td>
<td>116,530± square feet</td>
<td></td>
</tr>
<tr>
<td>4. Proposed alteration of the Riverfront Area:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9,000±</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. total square feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5,600±</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. square feet within 100 ft.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3,400±</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. square feet between 100 ft. and 200 ft.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Has an alternatives analysis been done and is it attached to this NOI?</td>
<td>☐ Yes ☒ No</td>
<td></td>
</tr>
<tr>
<td>6. Was the lot where the activity is proposed created prior to August 1, 1996?</td>
<td>☒ Yes ☐ No</td>
<td></td>
</tr>
</tbody>
</table>

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

**Note:** for coastal riverfront areas, please complete Section B.2.f. above.
B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont’d)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Size of Proposed Alteration</th>
<th>Proposed Replacement (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. □ Designated Port Areas</td>
<td>Indicate size under Land Under the Ocean, below</td>
<td></td>
</tr>
<tr>
<td>b. □ Land Under the Ocean</td>
<td>1. square feet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. cubic yards dredged</td>
<td></td>
</tr>
<tr>
<td>c. □ Barrier Beach</td>
<td>Indicate size under Coastal Beaches and/or Coastal Dunes below</td>
<td></td>
</tr>
<tr>
<td>d. □ Coastal Beaches</td>
<td>1. square feet</td>
<td>2. cubic yards beach nourishment</td>
</tr>
<tr>
<td>e. □ Coastal Dunes</td>
<td>1. square feet</td>
<td>2. cubic yards dune nourishment</td>
</tr>
<tr>
<td>f. □ Coastal Banks</td>
<td>1. linear feet</td>
<td></td>
</tr>
<tr>
<td>g. □ Rocky Intertidal Shores</td>
<td>1. square feet</td>
<td></td>
</tr>
<tr>
<td>h. □ Salt Marshes</td>
<td>1. square feet</td>
<td>2. sq ft restoration, rehab., creation</td>
</tr>
<tr>
<td>i. □ Land Under Salt Ponds</td>
<td>1. square feet</td>
<td></td>
</tr>
<tr>
<td>j. □ Land Containing Shellfish</td>
<td>2. cubic yards dredged</td>
<td></td>
</tr>
<tr>
<td>k. □ Fish Runs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. □ Land Subject to Coastal Storm Flowage</td>
<td>1. cubic yards dredged</td>
<td></td>
</tr>
</tbody>
</table>

4. □ Restoration/Enhancement

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 enter the additional amount here.

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

5. □ Project Involves Stream Crossings

   a. number of new stream crossings
   b. number of replacement stream crossings
C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

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 and Endangered Species Program (NHESP)? To view habitat maps, see the Massachusetts Natural Heritage Atlas or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

   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
   1 Rabbit Hill Road
   Westborough, MA 01581
   Phone: (508) 389-6360

   2008
   b. Date of map

   If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); OR complete Section C.2.f, if applicable. If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).

   c. Submit Supplemental Information for Endangered Species Review*  

      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

      2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands 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

* Some projects not in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.
C. Other Applicable Standards and Requirements (cont’d)

(c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_fee_schedule.htm). Make check payable to “Commonwealth of Massachusetts - NHESP” 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

(f) 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/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; 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 #
   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.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
   a. ☑ Not applicable – project is in inland resource area only   b. ☐ Yes ☐ No

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

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:
Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:
Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project 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.
C. Other Applicable Standards and Requirements (cont’d)

4. 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 MassDEP Website for ACEC locations). Note: electronic filers click on Website.

b. ACEC

5. 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

6. 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

7. 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. Check why the project is exempt: The pathway and wood chip-surfaced playground will not materially change drainage patterns and runoff volumes
      1. ☐ Single-family house
      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

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

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.

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.
D. Additional Information (cont’d)

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.

   Landscape Plan, Cashman Park, Haverhill, MA
   a. Plan Title
   b. Prepared By
   c. Signed and Stamped by
   d. Final Revision Date
   e. Scale
   f. Additional Plan or Document Title
   g. Date

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


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:

   2. Municipal Check Number
   3. Check date
   4. State Check Number
   5. Check date
   6. Payor name on check: First Name
   7. Payor name on check: Last Name
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  
City of Haverhill Wetlands Ordinance (Chapter 253)

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)(a).

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.

1. Signature of Applicant: Johnny Ouellette, Director of Human Services Department, City of Haverhill

2. Date: 4/28/17

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any) Andrea Kendall, LEC Environmental Consultants, Inc.

6. Date: 4/24/17

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 any part of Section C, Item 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.
A. Applicant Information

1. Location of Project:
   - Cashman Park- Hilldale Avenue
   - Haverhill
   - a. Street Address
   - N/A
   - b. City/Town
   - Fee Exempt
   - c. Check number
   - d. Fee amount

2. Applicant Mailing Address:
   - Vinny Ouellette
   - a. First Name
   - City of Haverhill
   - b. Last Name
   - 10 Welcome Street
   - c. Organization
   - Haverhill
   - d. Mailing Address
   - e. City/Town
   - MA 01830
   - f. State
   - g. Zip Code
   - 978-347-2388 ext 28 vouellette@cityofhaverhill.com
   - h. Phone Number
   - i. Fax Number
   - j. Email Address

3. Property Owner (if different):
   - a. First Name
   - City of Haverhill
   - b. Last Name
   - 4 Summer Street
   - c. Organization
   - Haverhill
   - d. Mailing Address
   - e. City/Town
   - MA 01830
   - f. State
   - g. Zip Code
   - h. Phone Number
   - i. Fax Number
   - j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. Please see Instructions before filling out worksheet.

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.
B. Fees (continued)

<table>
<thead>
<tr>
<th>Step 1/Type of Activity</th>
<th>Step 2/Number of Activities</th>
<th>Step 3/Individual Activity Fee</th>
<th>Step 4/Subtotal Activity Fee</th>
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<tbody>
<tr>
<td></td>
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<td>N/A Fee Exempt</td>
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</tbody>
</table>

Step 5/Total Project Fee:  

Step 6/Fee Payments:

Total Project Fee: Fee Exempt
  a. Total Fee from Step 5

State share of filing Fee:  
  b. 1/2 Total Fee less $12.50

City/Town share of filing Fee:  
  c. 1/2 Total Fee plus $12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection  
Box 4062  
Boston, MA 02211

b.) To the Conservation Commission: Send the Notice of Intent or Abbreviated Notice of Intent; a copy of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a copy of this form; and a copy of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)
A. STATUTE APPLICABILITY
   This application is being filed with the Commission in accordance with the following (check all that apply):
   ☑ Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40
   ☑ Haverhill Municipal Ordinance Chapter 253

B. GENERAL INFORMATION
   Applicant  City of Haverhill
   Property Owner  City of Haverhill
   Representative Andrea Kendall, LEC Environmental Consultants, Inc.
   Location (Street Address) Cashman Park, Haverhill, MA 01830
   Assessor’s Parcel Identification  523-326-1

C. APPLICATION CHECKLIST
   The Commission requires the submittal of this original, completed Form; ten (10) paper copies of site plans; and one (1) paper copy of all other materials. Additionally, the Commission requires the submittal of individual PDFs of this Form and all listed application materials. If practical, related items may be combined into a single PDF. PDFs should not mix larger format sheets (e.g. site plans) with smaller sheets (e.g. letters). These submittal requirements also apply to supplemental information provided during the public hearing. The following materials shall be submitted with this form:
   ☑ Completed, current WPA Form 3, 3A, or 4 and NOI Wetland Fee Transmittal Form
   ☑ Project Narrative with description of resource areas & delineation methodology and demonstration of compliance with pertinent Performance Standards
   ☑ Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan
   ☑ Site Plans clearly describing the location and nature of the work, including such information as site boundaries, wetlands, topography, existing and proposed conditions, vegetation cover, soils, erosion & sedimentation controls, Title 5 compliance, flood storage calculations…(24” x 36” max. sheet size)
   ☑ MassDEP Bordering Vegetated Wetland Delineation Field Data Forms, as appropriate
   ☑ Wetland Resource Area Impact Mitigation Plan prepared in accordance with MA Inland Wetland Replication Guidelines, if applicable
   ☑ Demonstration of compliance with MA River & Stream Crossing Standards, if applicable (The HCC applies the General Standards to all resource area crossings for wildlife passage.)
   ☑ Simplified or Detailed Wildlife Habitat Evaluation (Appendix A or B), if applicable (See “MA Wildlife Habitat Protection Guidance for Inland Wetlands”)
   ☑ Demonstration of compliance with MA Stormwater Management Standards, including but not limited to
     ☑ Stormwater Report with pertinent calculations based on NOAA Atlas 14 rainfall data
     ☑ Checklist for Stormwater Report
     ☑ Long-Term Pollution Prevention Plan
     ☑ Operation and Maintenance Plan

City of Haverhill Conservation Commission
HCC Local Application Form 3
Notice of Intent

Approved by HCC 5.12.2016

Page 1 of 3
City of Haverhill Conservation Commission
HCC Local Application Form 3
Notice of Intent

☐ Illicit Discharge Compliance Statement
☒ 8½” x 11” sections of the following maps with project location clearly identified
☒ USGS Quadrangle
☒ MassGIS Orthophoto
☒ City of Haverhill Parcel ID Map, also identifying properties within 300’ of subject property
☒ NRCS Soils Map and Resource Report
☒ FEMA Flood Insurance Rate Map, if applicable
☒ MA NHESP Estimated Habitats of Rare Wildlife and Priority Habitats of Rare Species, if applicable
N/A ☐ MassDEP/UMass-Amherst Habitat of Potential Regional or Statewide Importance, if applicable
N/A ☒ Proof of NOI filing with the MA Natural Heritage & Endangered Species Program, if applicable
☐ Other: ____________________________

D. LOCAL PERMIT DOCUMENTATION
In accordance with 310 CMR 10.05(4)(e), list all obtainable permits, variances, and approvals required by local ordinance with respect to the proposed activity and status of same: ____________________________
No additional permits are required.

E. APPLICATION CERTIFICATION
I have read the Department of Environmental Protection’s “Instructions for Completing Application” and the City’s Municipal Ordinance under Chapter 253, with all applicable regulations and policies, for the filing of this application with the Haverhill Conservation Commission and agree to its terms and conditions, as amended. I understand the submitted NOI, its plans, and all its supporting materials are public records and may be uploaded to the City’s website for public review. As required by the Commission, the wetland resource area(s) are flagged, the corners of proposed structures are staked, and the centerline of proposed roadway(s) and/or driveway(s) are marked, as appropriate, to facilitate site inspections by Commissioners and Conservation Staff.

Signed: ____________________________  Y-2-4-17
(APPLICANT)  (DATE)

F. SITE ACCESS ACKNOWLEDGEMENT
I hereby grant the Haverhill Conservation Commission and its officials permission to enter upon my property at Cashman Park, Hilldale Avenue, 523-326-1, to review the filed Notice of Intent and future site conditions for compliance with the issued Order of Conditions. The sole purpose of this acknowledgement is to allow the Commission and its officials to perform their duties under the Massachusetts Wetlands Protection Act and the City’s wetlands protection ordinance.

Signed: ____________________________  Y-2-4-17
(PROPERTY OWNER)  (DATE)

City Hall Room 300 • 4 Summer Street • Haverhill, MA 01830 • www.cityofhaverhill.org

Approved by HCC 5.12.2016
Page 2 of 3
### G. LOCAL ORDINANCE FEE CALCULATION FORM

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>LOCAL ORDINANCE FEE</th>
<th># of Activities or Measurement</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Abbrev. Notice of Resource Area Delineation (ANRAD)</em></td>
<td></td>
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<tr>
<td>Single Family House Project</td>
<td>$1/linear foot, first 100'; $0.50/lf, second 100'; $0.10/lf, each additional foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Other Projects</td>
<td>***$1/linear foot, first 1000'; $0.50/lf, second 1000'; $0.10/lf, each additional foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%*Notices of Intent (NOI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category 1 Activity</td>
<td>$100</td>
<td></td>
<td></td>
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<tr>
<td>Category 2 Activity</td>
<td>$250</td>
<td></td>
<td></td>
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<tr>
<td>Category 3 Activity</td>
<td>$525</td>
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<tr>
<td>Category 4 Activity</td>
<td>$725</td>
<td></td>
<td></td>
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<tr>
<td>Category 5 Activity</td>
<td>$2/foot</td>
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<tr>
<td>Category 6 Activity - If no ANRAD was filed for the project site, then a local Cat. 6 fee must be paid in accordance with the ANRAD fee schedule</td>
<td>See ANRAD fee schedule</td>
<td></td>
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<tr>
<td>Resource Area Alterations</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Buffer Zone, 75'-100' from resource area boundary</td>
<td>$0.05 / square foot</td>
<td></td>
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<tr>
<td>Buffer Zone, 35'-75' from resource area boundary</td>
<td>$0.10 / square foot</td>
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<td></td>
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<tr>
<td>Buffer Zone, 0'-35' from resource area boundary</td>
<td>$0.25 / square foot</td>
<td></td>
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<tr>
<td>Bordering Vegetated Wetland</td>
<td>$0.50 / square foot</td>
<td></td>
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<tr>
<td>Bank</td>
<td>$5 / linear foot</td>
<td></td>
<td></td>
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<tr>
<td>Land Under Water</td>
<td>$0.50 / square foot</td>
<td></td>
<td></td>
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<tr>
<td>Land Subject to Flooding</td>
<td>$0.05 / square foot</td>
<td></td>
<td></td>
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<tr>
<td>Riverfront Area</td>
<td>$0.05 / square foot</td>
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<tr>
<td>Riverfront Area with the watershed of a potable water supply</td>
<td>$0.50 / square foot</td>
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<tr>
<td>Land within 100' of a Certified Vernal Pool</td>
<td>$0.25 / square foot</td>
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<tr>
<td>Local-only Jurisdictional Resource Area</td>
<td>$0.25 / square foot</td>
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<tr>
<td>Land within 200' of a potable water supply</td>
<td>$0.50 / square foot</td>
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<tr>
<td><strong>ADVERTISING FEE</strong></td>
<td><strong>$45</strong></td>
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<tr>
<td><strong>LOCAL ORDINANCE FEE TOTAL</strong></td>
<td><strong>N/A Fee Exempt</strong></td>
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</table>

**Notes:**

- Fee exempt for City of Haverhill Project
- Application is subject to an additional $45 Local Advertising Fee payable to the City of Haverhill prior to EACH advertising
- Local Ordinance Fee maximum of $100, if, when determined necessary by Commission, applicant agrees to ANRAD review by outside consultant under M.G.L. Ch. 44, sec. 53G
- Local Ordinance Fees for RDA, NOI, & RMOC increase 50% when project is also proposed within a Riverfront Area
- Local Ordinance Fees passed by a 7 – 0 vote of the Commission on October 28, 2010, effective January 1, 2011
G. AFFIDAVIT OF SERVICE FOR ABUTTER NOTIFICATION

I, Sharon A. Sullivan, hereby certify under the pains and penalties of perjury that on April 27, 2017 I gave notification to all abutters pursuant to the requirements of the second paragraph of Massachusetts General Laws Chapter 131, Section 40, the DEP Guide to Abutter Notification dated April 8, 1994, and Haverhill Municipal Ordinance Chapter 253, Section 5 in connection with the following matter:

A Notice of Intent filed under the Massachusetts Wetlands Protection Act and said ordinance by LEC Environmental Consultants, Inc. with the Haverhill Conservation Commission on April 27, 2017 for property located at Cashman Park, Hilldale Avenue (Parcel ID: 523-326-1).

The list of the abutters to whom the Abutter Notification Form sent, with their addresses and Assessor’s parcel identification information that corresponds with the submitted map section, are attached to this application.

Signed: ________________________________   Date: __________
Sharon A. Sullivan
Permitting Technician

City Hall Room 300 • 4 Summer Street • Haverhill, MA 01830 • www.cityofhaverhill.org

Approved by HCC 5.12.2016
April 27, 2017

Certificate of Mailing

«Name»
«Name2»
«Address»
«City», «State» «Zip»

Re: Notice of Intent Application
Cashman Park, Hilldale Avenue
Parcel ID: 523-326-1
Haverhill, Massachusetts

[LEC File #: BRR\17-059.04]

Dear Abutter:

On behalf of the Applicant, the City of Haverhill, LEC Environmental Consultants, Inc. (LEC) has filed a Notice of Intent (NOI) Application with the Haverhill Conservation Commission to make improvements to Cashman Park. The proposed activities are located, in part, within the 100-foot Buffer Zone to Bank or Bordering Vegetated Wetlands (BVW) and/or the 200-foot Riverfront Area associated with the Little River. This filing is submitted pursuant to the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, s. 40, as amended), its implementing Regulations (310 CMR 10.00), and the City of Haverhill Wetlands Protection Ordinance (Chapter 253).

The report entitled Notice of Intent Application and Wetland Resource Area Analysis and accompanying site plans are available for review by the public at the Haverhill Conservation Commission located in City Hall, 4 Summer Street, Room 300. A Public Hearing will be held at City Hall on May 11, 2017, in accordance with the provisions of the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, s. 40, as amended), its implementing Regulations (310 CMR 10.00), and the City of Haverhill Wetlands Protection Ordinance (Chapter 253), respectively. Notice of both Public Hearing, including its date, time, and place, will also be published at least five (5) days in advance in the Haverhill Gazette. Notice of the Public Hearing will also be posted at the Haverhill City Hall at least 48 hours in advance.

Please do not hesitate to review the materials and/or attend the public hearing should you have questions or concerns about the proposed project.

Sincerely,

LEC Environmental Consultants, Inc.

Andrea Kendall
Senior Environmental Scientist

enclosure
H. ABUTTER NOTIFICATION FORM

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40 (the Wetlands Protection Act) and Haverhill Municipal Ordinance Chapter 253, Section 5, you are hereby notified of the following:

1. The name of the applicant is the City of Haverhill.
2. Brief Project Description: Improvements to Cashman Park located on Hilldale Avenue. Proposed activities are located, in part, within the 100-foot Buffer Zone to Bank or Bordering Vegetated Wetlands (BVW) and/or 200-foot Riverfront Area associated with the Little River. Erosion controls are also proposed.
3. The applicant has filed a Notice of Intent (“NOI”) with the Haverhill Conservation Commission seeking permission to remove, fill, dredge or alter an Area Subject to Protection Under the Wetlands Protection Act and/or Haverhill Municipal Ordinance Chapter 253 and/or to perform work within the buffer zone of such an Area.
4. The address of the lot where the activity is proposed is Cashman Park, Hilldale Avenue (Parcel ID: 523-326-1).
5. Copies of the NOI may be examined at the Haverhill Conservation Department Office between the hours of 8am and 4pm from Monday through Friday. Contact information is below. You may also find helpful application materials on the “Projects Under Review” section of the Commission’s website.
6. Copies of the NOI may be obtained from either (check one) the applicant ___, or the applicant’s representative X, by calling this telephone number (781) 245-2500 between the hours of 8:00 a.m. and 5:00 p.m. on the following days of the week Monday through Friday.
7. Information regarding the date, time, and place of the public hearing may be obtained from the Haverhill Conservation Department Office between the hours of 8am and 4pm from Monday through Friday. Contact information is below. You may also consult the “Agenda” section of the Commission’s website.

NOTE: Notice of the public hearing, including its date, time and place, will be published at least five (5) days in advance in the Haverhill Gazette newspaper.

NOTE: Notice of the public hearing, including its date, time, and place, will be posted in Haverhill City Hall not less than forty-eight (48) hours in advance.

NOTE: You may contact the Haverhill Conservation Department for more information about this application, the Wetlands Protection Act, and Haverhill Municipal Ordinance Chapter 253. Please note the Department has only one staff person; every effort will be made to assist you in a timely manner.

Email: conservation@cityofhaverhill.com
Phone: 978.374.2334

NOTE: For additional information about this application and the Act, you may contact the MA Department of Environmental Protection Northeast Regional Office Service Center.

Website: http://www.mass.gov/eea/agencies/massdep/about/contacts/northeast-region.html
Phone: 978.694.3200
Notice of Intent Application
& Wetland Resource Area Analysis

Cashman Park Improvements
Assessor’s Parcel ID: 523-326-1
Haverhill, Massachusetts

April 27, 2017
1. Introduction

On behalf of the Applicant, the City of Haverhill, LEC Environmental Consultants, Inc., (LEC) is submitting this Notice of Intent (NOI) Application and Wetland Resource Area Analysis for a public benefit project to improve Cashman Park in Haverhill, Massachusetts. Cashman Park provides passive and active recreational amenities, including two ball fields, a basketball court, a skateboard park, and open lawn areas. Wetland Resource Areas associated with the project site include Bordering Vegetated Wetland (BVW), Bank associated with an intermittent stream, Bank-Mean Annual High Water (MAHW) Line associated with the Little River, 200-foot Riverfront Area, and Bordering Land Subject to Flooding (BLSF), all protected under the Massachusetts Wetlands Protection Act (M.G.L., c. 131, s. 40, the Act,) and its implementing Regulations (310 CMR 10.00, the Act Regulations), and the City of Haverhill Wetlands Protection Ordinance (Chapter 253, the Ordinance). The proposed project is depicted on the attached Landscape Plan, Cashman Park, Haverhill, MA prepared by Brown, Richardson + Rowe, 2 sheets, dated April 24, 2017 (Landscape Plan, Appendix C).

The following NOI Application provides a description of the existing Wetland Resource Areas, proposed activities, and mitigating measures proposed to protect the interests and values of the Wetland Resource Areas enumerated within the above-referenced statutes.

2. General Site Description

Cashman Park (the Park) is located south and east of Interstate 495, north of Winter Street (Route 97), west of the Little River, and east of Hilldale Avenue, within the central portion of Haverhill, Massachusetts (Appendix A, Figure 1). Residential and commercial development associated with Hilldale Avenue, Leblanc Street, and Little River Street generally surround the Park to the north, south, and west, while the Little River and the Amtrak railroad tracks are located to the east. The 4.8± acre Park is comprised of a ball field within the southwest quadrant of the park, a basketball court within the northwest quadrant, and a second ball field and skateboard park within the northeast quadrant (Appendix A, Figure 2). The 9,643± square foot skateboard park consists of concrete ramps and obstacles and metal rails situated on bituminous concrete. The remainder of the park is comprised of maintained lawn, forested uplands, and wetland areas. A 6-foot high
chain-link fence separates the Park from the river and hillside to the east, and residential
development to the north and south. Forested upland areas are located along the northern,
southern, and eastern Park boundary, while the Little River is located east of the Park.
Topography throughout the site is generally flat with moderately steep slopes descending
easterly approximately 6 feet from the eastern portion of the park to the Little River.

Forested uplands contain a canopy of predominantly northern red oak (*Quercus rubra*),
with white oak (*Quercus alba*), pignut hickory (*Carya glabra*), feral apple (*Malus* sp.),
black cherry (*Prunus serotina*), Norway maple (*Acer platanoides*), catalpa (*Catalpa
speciosa*), and inclusions of red maple (*Acer rubrum*), grey birch (*Betula populifolia*),
and ash (*Fraxinus* sp.). The understory contains patches of saplings from the canopy,
predominant patches of tartarian honeysuckle (*Lonicera tartarica*), Oriental bittersweet
(*Celastrus orbiculatus*), and multiflora rose (*Rosa multiflora*). No notable ground cover
was observed.

According to the Natural Resource Conservation Service (NRCS) Soil Survey (Web Soil
Survey and Essex County, Massachusetts, Northern Part, Version 12, September 14,
2016) the majority of the site contains Udorthents, smoothed. A narrow band of Urban
Land is located along the southwestern Park boundary (Appendix A, Figure 4). LEC
confirmed the presence of these soils in the field, inspecting soils within the upland areas
adjacent to the BVW boundary using a hand-held, Dutch-style auger. Specifically, LEC
observed a loamy sand topsoil (A horizon) measuring 6 inches thick, with a soil matrix of
10YR 2/2. The topsoil is underlain by a 14-inch-thick weathered sandy loam subsoil (Bw
horizon) with a soil matrix color of 2.5Y 5/4. Faint redoximorphic concentrations were
found at a depth of 13 inches with a soil color of 7.5YR 4/6. These soil profiles are not
considered ‘hydric’ according to the *Field Indicators Guide*.

### 2.1 Natural Heritage and Endangered Species Program Designation

According to the 2008 edition of the NHESP *Massachusetts Natural Atlas* – Haverhill
Quadrangle, the Park does not contain Estimated Habitat of Rare Wildlife or Priority
Habitat of Rare Species. No Certified Vernal Pools (CVP) or Potential Vernal Pools
(PVP) are mapped on or within the immediate vicinity of the site. (Appendix A, Figure
2).
3. **Wetland Boundary Determination Methodology**

On March 28, 2017, LEC conducted a site evaluation to identify and characterize existing protectable Wetland Resource Areas located within Cashman Park and proximate to the planned improvements. Based on our observations, LEC determined that the Wetland Resource Areas associated with the site include BVW, Bank associated with an intermittent stream, Bank-MAHW Line associated with the Little River, and Bordering Land Subject to Flooding (BLSF). The 100-foot Buffer Zone extends from the BVW and Bank boundaries, while the 200-foot Riverfront Area extends from the Bank-MAHW Line.

LEC delineated the BVW boundary with sequentially-numbered, blaze-orange surveyor’s tape with the words “LEC Resource Area” printed in black. LEC flagging stations W-1 through W-5 and W-6 through W-12 demarcate two pockets of BVW along the Bank-MAHW Line to the Little River. LEC delineated the Bank and Bank-MAHW boundary with sequentially-numbered, safety-blue surveyor’s tape. LEC flagging stations B-1 through B-19 and B-28 through B-30 demarcate the Bank-MAHW Line of the Little River, while LEC flagging stations B-20 through B-27 demarcate the Bank associated with the Intermittent Stream. All flagging stations were survey located and are shown on the attached Landscape Plan.

The extent of Wetland Resource Areas was confirmed through observations of existing plant communities, hydrologic indicators, and bankfull indicators in accordance with the Act, the Act Regulations, and the Ordinance.

3.1 **Plant Species Identification**

LEC identified plant species comprising 5% or more of the vegetative cover along the BVW boundary. Identifications were made to the species level when morphologically possible and were used along with other hydrologic indicators to define the BVW boundary in accordance with definitions and criteria in 310 CMR 10.55(2).

3.1.1 **Identification of Wetland Indicator Species**

The regional wetland indicator status for all identified plant species was obtained from the classification system described in the National List of Plant Species that Occur in Wetlands: Massachusetts (Reed, 1988). This classification system divides plant species
into ten categories and identifies the wetland indicator status based on the frequency of their occurrence in wetland habitat. These include, in order of lowest to highest frequency within wetlands:

- Facultative Upland Minus (FACU-),
- Facultative Upland (FACU),
- Facultative Upland Plus (FACU+),
- Facultative Minus (FAC-),
- Facultative (FAC),
- Facultative Plus (FAC+),
- Facultative Wetland Minus (FACW-),
- Facultative Wetland (FACW),
- Facultative Wetland Plus (FACW+), and
- Obligate (OBL).

Plant species with a FAC, FAC+, FACW-, FACW, FACW+, or OBL wetland indicator status occur in wetlands more than 50% of the time and are considered “wetland indicator plants.” Plant species with a FAC-, FACU+, FACU, FACU- wetland indicator status, and those not contained within the list occur in wetlands less than 50% of the time, are not considered “wetland indicator plants.” This system of classification has been adopted by the Department of Environmental Protection (DEP) as the definitive source regarding the indicator status of wetland plants.

### Measurement of Relative Abundance

The relative abundance or percent cover of each plant species occurring along the BVW boundary was determined visually. When completing DEP BVW (310 CMR 10.55) Delineation Field Data Forms, midpoints were utilized to determine the percent cover of each plant species according to the following classification system: 3% = 1-5%; 10.5% = 6-15%; 20.5 = 16-25%; 38% = 26-50%; 63% = 51-75%; 85.5% = 76-95%; and 98% = 96-100%. The purpose of using midpoints is to reduce variability between wetland scientists when visually determining percent cover. Utilizing midpoints does not affect whether a given species within a sample layer will be a dominant plant and is recommended in DEP’s handbook, *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*.
3.1.3 Measurement of Vegetative Distribution and Density

The relative pattern of plant distribution within each vegetative layer (canopy, sapling, shrub, lianas, and groundcover) was visually determined. Plant species within each layer were determined to occur as single plants, patches or clusters, entanglements, or as the dominant plant species. In addition, LEC observed the relative plant density between each vegetation layer, noting whether the sample layer is densely vegetated, contains moderately dense vegetation, is variably dense within the sample layer, or is sparsely vegetated.

3.2 Evaluation of Edaphic (Soil) Characteristics

3.2.1 General Soil Analysis

Prior to conducting the site evaluation, LEC reviewed United States Geologic Survey (USGS) Topographic Maps and United States Natural Resources Conservation Service (NRCS) Soil Survey Maps. The purpose of this review was to become familiar with the site’s general soil characteristics. During site reconnaissance, LEC determined the approximate location of the BVW boundary and determined which areas along the BVW boundary would best represent the upland and wetland portions of the site. Using a Dutch-style, hand-held auger and/or spade, LEC investigated soil conditions within these representative areas by digging a test pit to a depth of at least 20 inches, or refusal. The purpose of this investigation was to confirm and document the difference in soil conditions between the wetland and adjacent upland areas. Specifically, LEC analyzed soil horizon thickness and depth, soil texture, and soil color, noting the presence or absence of redoximorphic features in accordance with Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act (March 1995) and Field Indicators for Identifying Hydric Soils in New England (April 2004).

3.2.2 Soil Horizon Thickness and Depth

LEC noted the presence of all soil layers and horizons (e.g. O, A, E, B, and/or C) and their relative thickness and depth within the test pit. The thickness of the O soil layer may be directly related to wetness and is critical to the identification of a hydric soil. Specifically, histosols (organic soil layers measuring greater than 16 inches thick) and soils with a histic epipedon (an organic layer between 8 and 16 inches thick) always qualify as hydric soils, provided the hydrology that created these soil conditions still...
exists and has not been altered. Although not directly related to wetness, the thickness of the A or Ap horizons is a function of the depth of plowing (many of New England’s forests today were historically agricultural fields) and/or a function of erosion and deposition of organic matter. Interpreting redoximorphic features within the A or Ap horizons can be difficult given their relatively dark color. Redoximorphic features are best observed in the soil layers beneath the A or Ap horizons.

3.2.3 Soil Texture

Soil texture refers to the relative proportions of sand, silt, and clay particles in the soil. Although there are several standard systems for determining soil texture, LEC utilized the United States Department of Agriculture (USDA) system, because it is widely accepted and referred to in the Field Indicators guide referenced above. Specifically, LEC identified whether the soil is classified as sand, loamy sand, sandy loam, loam, silt loam, silty clay loam, or clay. LEC also estimated the relative proportion of organic matter within the topsoil to determine if the soil is classified as an organic soil. Differences in soil texture affect how water moves through the soil and the type of hydrologic indicators that form when hydric conditions are present during the growing season.

3.2.4 Soil Color

Using the Munsell® Soil Color Charts, LEC examined the hue, value, and chroma of the different soil horizon matrixes (dominant soil color) and redoximorphic features present within the test pits. The purpose of examining the soil color within the A or Ap horizon is to determine whether these horizons are rich in organic material and meet the criteria for dark or very dark. This distinction refers to the relative amount of organic matter within the soil horizon and may indicate the presence of saturated conditions during the growing season.

Within the B and/or C horizons, the soil color and color patterns may indicate the movement of iron and/or other minerals within the soil. The movement and/or concentration of iron and other minerals, such as manganese, may indicate hydric conditions persist during the growing season. Specifically, a soil matrix color with a relatively low chroma (chroma 2 or less) and high value (value 4 or more) due to wetness is often defined as a depleted matrix - the iron and/or other minerals have been removed or depleted from the soil due to groundwater fluctuations, soil saturation, and reduction.
A soil with a depleted matrix due to wetness within the upper 20 inches will likely constitute a hydric soil.

3.2.5 Redoximorphic Features

During the soil evaluation, LEC documented the presence or absence of redoximorphic features within the soil sample. Redoximorphic features are changes in soil color and/or texture that contrast from the matrix color and dominant soil texture and include redox depletions (formerly referred to as “low-chroma mottles”), redox concentrations (formerly referred to as “high-chroma mottles”), nodules, concretions, pore linings, and oxidized rhizospheres. Redoximorphic features form through the processes of reduction, translocation, and oxidation of Fe and Mn oxides when groundwater levels fluctuate near the soil surface. Commonly observed redoximorphic features include redox depletions, occurring when minerals in the soil are reduced or removed, and redox concentrations or soil masses, occurring when minerals accumulate. Less commonly observed redoximorphic features include nodules and concretions, which are hardened, cemented soil masses. Pore linings are localized areas of brightly colored soils located adjacent to a pore within the soil. Oxidized rhizospheres are a form of pore lining that occurs on the surface of live roots of certain plants.

4. Wetland Resource Areas

Wetland Resource Areas associated with Cashman Park include BVW, Bank, Bank-MAHW Line, Riverfront Area, and/or BLSF. All are jurisdictional under the Act and Act Regulations and Ordinance. The Wetland Resource Areas are further described below.

4.1 Bordering Vegetated Wetlands

A Bordering Vegetated Wetland (BVW) is defined as: freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes...Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants...The boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist [310 CMR 10.55(2)].
Freshwater Wetlands are defined as: *Areas where the topography is low and flat and where the soils are annually saturated.* The boundary of vegetated wetlands is the line within which the vegetational community is substantially characterized by species identified in the Wetlands Protection Act or this chapter, or, when vegetation appears to have been altered, within which hydric soils are present. The types of vegetated wetlands are: wet meadows, marshes, swamps and bogs. The Commission may find, based on substantial evidence in a particular case, that additional species are characteristic of wetlands. [The Ordinance, Section 253-8].

Two pockets of scrub-shrub wetland border the Little River. At the time of LEC’s delineation, the vegetated wetland contained flood waters from the adjacent Little River. This wetland contains a sparse canopy of red maple and ash. The understory contains sapling American elm (*Ulmus Americana*), speckled alder (*Alnus incana*), silky dogwood (*Cornus amomum*), multiflora rose, Tartarian honeysuckle, and northern arrowwood (*Viburnum dentatum*).

LEC inspected soil conditions within the BVW using a hand-held, Dutch-style auger and drain spade, and observed a 6-inch thick loamy sand topsoil (A Horizon) with a soil matrix color of 10YR 3/2. The topsoil transitions with depth to a depleted sandy loam subsoil (Bg horizon) with a soil matrix color of 2.5Y 4/3 up to 20 inches. Distinct redoximorphic concentrations were found at a depth of 6 inches with a soil color of 7.5YR 4/6. This soil profile is considered ‘hydric’ according to the *Field Indicators Guide*.

**Bank**

Bank is *the first observable break in slope or the mean annual flood level, whichever is lower.* The lower boundary of a Bank is the mean annual low flow level [310 CMR 10.54 (2) (c)].

Bank includes the land area which normally abuts and confines a water body, the lower boundary being the mean annual low flow level and the upper boundary being the first observable break in the slope or the mean annual flood level, whichever is higher [The Ordinance, Section 253-8].

An intermittent stream flows easterly from a 48-inch corrugated metal pipe (CMP) along the southern property boundary and discharges into a cattail marsh adjacent to the Little River. A second 24-inch culvert located adjacent to the 48-inch pipe discharges Hilldale...
Avenue road drainage to the stream. The stream is not depicted on the most recent USGS Topographic map. In an effort to determine the regulatory status of this stream as intermittent or perennial, the USGS StreamStats (Version 4.0) method was employed to the extent practicable in accordance with 310 CMR 10.58(2)(a)(1) to assess watershed area and 99% flow duration. Per the Act Regulations, when the watershed area is 1.0 square mile or greater, the stream is considered perennial. When the watershed size is below 1.0 square mile, the stream is perennial if the watershed area is at least 0.50 square miles and the predicted flow rate at the 99% flow duration is 0.01 cubic feet per second (cfs) or greater. The USGS StreamStats method calculated the watershed area of this stream at approximately 0.36 square miles; however, the StreamStats report did not provide the predicted flow rate for the 99% flow duration. Given that the watershed area was below the minimum threshold of 0.50 square miles, determining the predicted flow rate at the 99% flow duration is not required. Accordingly, the stream is regulated as an intermittent stream.

The stream measures approximately 10 feet wide and 6 to 12 inches deep. The Bank, comprised of vegetation, roots, and soil, contains bank undercuts and exhibits an abrupt transition from the stream channel to the upland. The top of Bank to the stream measures between 1 to 2 feet high. Vegetation located on the Bank includes silky dogwood and glossy buckthorn (*Frangula alnus*). Vegetation along the upper embankments includes a sparse canopy of tree of heaven (*Ailanthus altissima*) and a shrub layer of multiflora rose, tartarian honeysuckle, glossy buckthorn, common buckthorn (*Rhamnus cathartica*), and Oriental bittersweet.

### Bank-Mean Annual High Water Line

Mean Annual High Water (MAHW) is defined at 310 CMR 10.58(2)(a)(2) as the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of pointbars, changes in bank materials, or bank undercuts...

The *Ordinance* does not define Mean Annual High Water, so the above definition prevails.
Proximate to the Park, the Little River flows in a southerly direction and varies in width from approximately 85 to 175 feet. The Bank, comprised of vegetation, roots, rocks, and soil, contains bank undercuts and exhibits an abrupt transition from the stream channel to the upland or BVW. The MAHW Line is consistent with the top of Bank of the river measuring 1 to 3 feet high. Multiple corroborating Bankfull Indicators were observed to determine the Bank-MAHW Line, including bank undercuts and an abrupt transition between “predominantly aquatic and predominantly terrestrial land.” Vegetation along the Bank contains a sparse canopy of red maple and an understory of sapling American elm, silky dogwood, speckled alder, northern arrowwood, and winterberry holly (*Illex verticillata*). The Little River is located at the bottom of a moderate to moderately steep embankments. Vegetation along the embankments contains a sparse canopy of black cherry, and an understory of sapling Norway maple, tartarian honeysuckle, multiflora rose, and Japanese knotweed (*Polygonum cuspidatum*).

**Riverfront Area**

A River is defined as *any natural flowing body of water that empties to any ocean, lake, pond or other river and which flows throughout the year*. Rivers include streams that are perennial because surface water flows within them throughout the year. Intermittent streams are not rivers as defined herein because surface water does not flow within them throughout the year [310 CMR 10.58(2)(a)(1)].

Riverfront Area is the area of land between a river’s mean annual high waterline measured horizontally outward from the river and a parallel line located 200 feet away. [310 CMR 10.58(2)(a)(3)].

Previously Developed Riverfront is defined at 310 CMR 10.58 (5) as areas degraded or previously developed prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds. The *Ordinance* does not define Riverfront Area, so the above definitions prevail.

Land within 200 feet of the Bank-MAHW Line of the Little River is considered Riverfront Area. It is comprised of the skateboard park, forested areas, maintained lawn and landscaped areas, and portions of the ball fields. The paved areas associated with the skateboard park and portions of the ball field lacking topsoil within the Riverfront Area are considered “degraded,” while the remaining lawn areas are considered “previously developed” Riverfront Area in accordance with 310 CMR10.58(5).
Bordering Land Subject to Flooding

Bordering Land Subject to Flooding (BLSF) is an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and waterbodies; where a bordering vegetated wetland occurs, it extends from said wetland [310 CMR 10.57(2)(a)].

The Ordinance does not define Bordering Land Subject to Flooding, so the above definition prevails.

According to the July 3, 2012 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Essex County, Massachusetts (Map No: 25009C0087F) (Appendix A, Figure 3), roughly the eastern third of the property is located within Zone X (Shaded): Areas of 0.2% annual chance flood; area of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. The forested hillside along the eastern Park boundary is located within Zone AE (NAVD 88 between elevations 24-25 feet): Special Flood Hazard Areas Subject to Inundation By The 1% Annual Chance Flood, Base Flood Elevations Determined (Appendix A, Figure 3). The Little River is located within Floodway Areas in Zone AE: The Floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. Land extending from the BVW and/or Bank to the Zone AE elevation (NAVD ‘88, between elevations 24-25 feet) qualifies as BLSF. Other than a portion of the forested hillside up to elevation 24-25 feet, the developed portion of Cashman Park does not contain BLSF.

Proposed Park Improvements

The proposed park improvement project includes in-kind replacement of the skateboard park, installation of a new playground within the southeastern portion of the Park, resurfacing the basketball court, installation of a new bituminous concrete pathway with benches, and new landscaped areas. Portions of the proposed activities will be located within the 100-foot Buffer Zone and/or 200-foot Riverfront Area. No portion of the work will occur within BLSF.
The existing skateboard park will be milled and resurfaced and new equipment will be added. While the current skateboard park is located within the 200-foot Riverfront Area, no additional impervious area will be created from resurfacing the skateboard park. The basketball court, located outside of the aforementioned Resource Areas, will also be resurfaced within its existing footprint.

A 5,525 ±sf playground will be constructed on an existing lawn area located within the southeastern portion of the Park. The new playground, surfaced with wood chips/mulch, will be located within the 200-foot Riverfront Area and 100-foot Buffer Zone. A new landscape area, comprised of three trees and a perennial/groundcover planting bed, will accent the playground entrance. An additional shade tree will be planted north of the playground, while two new shade trees will be planted along Hilldale Avenue proximate to the basketball court.

Pedestrian access to the new playground and skateboard park will be provided via a 6-foot wide bituminous concrete pathway originating from Hilldale Avenue. Two benches situated on concrete pads will be installed proximate to the pathway within the Riverfront Area and 100-foot Buffer Zone. Of the total 607 linear feet of pathway (3,642 sf), approximately 414 linear feet (2,484 sf) are located within Riverfront Area. All disturbed areas will be loamed and seeded with a lawn seed mix.

6. **Mitigation Measures**

The Applicant proposes to implement a sedimentation and erosion control program during construction activities.

6.1 **Erosion and Sedimentation Control**

A sedimentation and erosion control program will be implemented to protect the adjacent Little River, Bank, and BVW from sedimentation during the proposed construction activities. As shown on the Landscape Plan, compost filter tubes will be installed to demarcate the limit of work. Erosion controls will be installed along the north, eastern, and southern project perimeter, between the proposed work and the intermittent stream, BVW, and Little River. The erosion controls will provide additional assurance that construction equipment will not further intrude upon the Buffer Zone and Riverfront Area. All barriers will remain in place until disturbed areas are stabilized.
Stormwater Management

The DEP Stormwater Regulations require that the project meet the standards to the “maximum extent practicable” for footpaths, bike paths, and other paths for pedestrian and/or non-motorized access, in accordance with 310 CMR 10.05(6)(m). As proposed, the stormwater run-off from the new path will flow over the pavement to the lawn area alongside the pathway. Given the topographically flat areas, it is expected that water draining off the pathway will infiltrate into the ground naturally. Creating drainage swales or detention areas would result in increased alteration of Riverfront Area and the 100-foot Buffer Zone. Creating such areas also would result in stormwater discharge points that could result in scouring or alteration of the adjacent Bank, Riverfront Area, and 100-foot Buffer Zone during precipitation events. Any stormwater run-off (that does not infiltrate naturally) will sheet flow overland virtually eliminating stormwater discharge points.

Hot-mix asphalt applied over a stone/gravel base is specified for paving the pathway. Porous pavement may seem a likely alternative; however, porous pavement requires regular maintenance to ensure function over the long term. Typically, porous pavement is routinely maintained with a vacuum truck or pressure washer to remove road sand, vegetative debris, accumulated soil, etc., from the pores to ensure continued infiltration. While the proposed pathway will not be plowed or sanded during the winter months, the pathway will be subject to leaf and vegetative debris, particularly during the fall months, which, over time, could clog the porous pavement and reduce its ability to infiltrate stormwater. The City of Haverhill does not intend to, nor have they budgeted for, vacuuming or pressure-washing the proposed path on a regular basis.

Given the topographic grades along the pathway, it is not practicable to provide typical stormwater management measures for this site. Porous pavement also is not a practical solution given the maintenance required to provide continuous function. The flat lawn and landscaped areas immediately adjacent to the pathway will facilitate the infiltration of the modest increase in stormwater run-off.
7. Regulatory Compliance

Wetlands Protection Act

Riverfront Area extends landward 200 feet from the Little River’s MAHW Line. The portion of Riverfront Area proposed to be altered consists of existing lawn and paved skateboard park. The work within the skateboard park qualifies as degraded Riverfront Area, while work within the lawn is considered previously developed but must comply with the Riverfront Area Performance Standards as provided below.

Redevelopment Standards

Redevelopment Within Previously Developed Riverfront Areas: Restoration and Mitigation. Notwithstanding the provisions of 310 CMR 10.58 (4) (c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation, or expansion of existing structures...A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil...Work to redevelop previously developed riverfront area shall conform to the following criteria:

(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, s. 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.

A new landscape area, comprised of four (4) trees and a perennial/groundcover planting bed, and two (2) additional trees located outside the Riverfront Area proximate to Hilldale Avenue and the basketball court, are proposed to improve existing conditions.

Stormwater management is provided according to standards established by the Department.

As described above in Section 6.2, it is not practicable to provide typical stormwater management measures for this project.

(b) Proposed work shall not be located closer to the river than existing conditions... within 200-foot Riverfront Area...
The proposed work is located within the existing developed footprint of Cashman Park and will not extend closer to the River.

(c) Proposed work, including expansion of 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 (f) or (g).

The proposed pathway has been located within the outer Riverfront Area to the extent practicable without interfering with the existing ball field. Due to the location of existing park features (i.e., ball fields and skateboard park), there were limited opportunities for playground placement. Other locations were considered, however, these locations are located closer to the river and do not align with park use and flow.

(d) The area of proposed work shall not exceed the amount of the 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 (f) or (g).

The existing degraded Riverfront Area is comprised of the skateboard park (9,643±sf) and a portion of the stone dust surface associated with the ball fields (1,525±sf). The proposed new work within previously developed Riverfront Area will be limited to the new bituminous concrete pathway, park benches, landscaped areas, and a new mulch/wood chip-surfaced playground, resulting in an alteration of approximately 9,000± sf. A portion of this work (3,438±sf) (i.e., pathway and concrete pads for park benches) will result in a degraded (i.e., impervious) condition and represents approximately 3% of the Riverfront Area.

(e) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58 (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...

Not applicable since no restoration of on-site degraded riverfront area is proposed.
City of Haverhill Wetlands Protection Ordinance

According to the Ordinance [253-6(D)], when proposing alterations of land within 50 feet of a wetland, the applicant must overcome a strong presumption of adverse impact on the adjacent wetlands and their functions and values. The Commission is empowered to require a twenty-five-foot no-build-no-disturbance zone extending from the edge of all wetland resource areas and a fifty-foot no-build zone. No activity is allowed in the no-disturbance zone except as allowed by the Commission or this chapter. Building construction of any kind, except as allowed by the Commission or this chapter, is prohibited in the no-building zone.

The Ordinance [253-8(B)] defines the No-Build Zone as twenty-five to 50 feet from the flagged wetlands on the site where no building is allowed and the No Build No Disturbance Zone as an area set aside from development to allow for a buffer area between wetlands and buildings, zero to 25 feet from the flagged wetlands on the site where no disturbance or building is allowed, except as stated in the exceptions sections of this chapter.

According to the Ordinance [253-3(6)], an application and permit required by this chapter shall not be required for work or structures providing public or private access to rivers, streams, lakes and ponds and any areas established for outdoor recreational use.

The overall project purpose is to enhance and provide additional opportunities for outdoor recreational use at Cashman Park. Given the project scope, the project would not be subject to the Ordinance and as such, the No Build and No Disturbance Zone would not apply. However, it is important to note that, at its closest point, the pathway and playground are located approximately 30 feet and 23 feet, respectively, from the wetland resource area (i.e., Bank to Intermittent Stream).

8. Summary

On behalf of the Applicant, the City of Haverhill, LEC is filing the enclosed NOI Application with the City of Haverhill Conservation Commission for this public benefit to improve the existing Cashman Park in Haverhill, Massachusetts.
Portions of the proposed work activities will occur within the 100-foot Buffer Zone to 
BVW and/or Bank and 200-foot Riverfront Area associated with the Little River and are 
areas protected under the Act, the Act Regulations, and the Ordinance.

As part of this filing, the Applicant proposes to implement mitigation measures, including 
the installation of erosion controls, and meets the performance standards enumerated 
above. Accordingly, the Applicant requests that the Commission issue an Order of 
Conditions approving the project.
City of Haverhill Wetlands Protection Ordinance, Chapter 253

Federal Emergency Management Agency Flood Insurance Rate Map for Essex County (Community Panel 25009 C 0087F), effective July 3, 2012


Massachusetts Wetlands Protection Act (M.G.L. c. 131, §. 40) and its implementing Regulations (310 CMR 10.00), www.state.ma.us/dep.


Appendix A

Locus Maps

Figure 1: USGS Topographic Map
Figure 2: Aerial Orthophoto
Figure 3: FEMA Flood Insurance Rate Map
Figure 4: NRCS Web Soil Survey
Figure 1: USGS Topographic Map
Cashman Park
Hilldale Avenue
Haverhill, MA
April 25, 2017
**LEGEND**

**SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A**
- No Base Flood Elevations determined.

**ZONE AE**
- Base Flood Elevations determined.

**ZONE AH**
- Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

**ZONE AO**
- Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE AR**
- Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

**ZONE A99**
- Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

**ZONE V**
- Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

**ZONE VE**
- Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

**ZONE X**
- Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**

**ZONE X**
- Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D**
- Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- **1% Annual Chance Floodplain Boundary**
- **0.2% Annual Chance Floodplain Boundary**
- **Floodway boundary**
- **Zone D boundary**
- **CBRS and OPA boundary**

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

**Base Flood Elevation line and value; elevation in feet**

**Base Flood Elevation value where uniform within zone; elevation in feet**

*Referenced to the North American Vertical Datum of 1988*

**Cross section line**

**Transect line**

**Culvert**

**Bridge**

**Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere**

- 1000-meter ticks: Massachusetts State Plane Mainland Zone (FIPS Zone 2001), Lambert Conformal Conic projection
- 1000-meter Universal Transverse Mercator grid values, zone 19N

**Bench mark (see explanation in Notes to Users section of this FIRM panel)**

**River Mile**

**MAP REPOSITORIES**

Refer to Map Repositories list on Map Index

**EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP**

July 3, 2012

**EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL**
Soil Map—Essex County, Massachusetts, Northern Part

Soil Map may not be valid at this scale.

Map Scale: 1:1,500 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 19N WGS84
The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Northern Part
Survey Area Data: Version 12, Sep 14, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 29, 2014—Sep 19, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
# Map Unit Legend

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Notice of Intent Application  
Cashman Park  
Haverhill, Massachusetts

Photo 1. Easterly view of ball field with skate park in rear.

Photo 2. Southwesterly view of ball field with Hilldale Avenue in background.

Photo 3. Proposed pathway and new park entrance will be located south (left) of ball field.
Notice of Intent Application  
Cashman Park  
Haverhill, Massachusetts

Photos 4-6. Views of existing skate park. Skate park will be re-surfaced and new equipment will be installed.

Site Photographs
Photo 7. Existing basketball court.

Photo 8. Proposed location of new playground and path.
Appendix C

Landscape Plan, Cashman Park, Haverhill, MA, prepared by Brown, Richardson + Rowe
dated April 24, 2017